User Guide

Selectronic 6 Controls

SEL 6-24 and SEL 6-120 Models

Installation

Maintenance

Operation

Troubleshooting

Instant Access
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UGC008/0502

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 and serial number(s) 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:
UGC008/0502: UG
Serial number(s):
Model number(s):

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INTRODUCTION

PURPOSE OF THE USER GUIDE

This User Guide describes the Conair Selectronic SEL 6-24 and SEL 6-120 Models 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.

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 requirements, intended uses 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. A properly sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal inside the electrical enclosure. Improper grounding can result in personal injury and erratic machine operation.

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.

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 maintenance. Only qualified personnel should perform procedures that require access to the electrical enclosure while power is on.

CAUTION: Hot surfaces

Surface temperatures inside the PRODUCT can exceed 250° F (121° C). Always allow the unit to cool to below 100° F (38° C) before opening, servicing or disassembling the unit.

CAUTION: *Controls mounted to the loader are never intended to be used as a handle to lift the loader or provide balance assistance to users during maintenance, etc. Injury could result.*

DESCRIPTION

DESCRIPTION

Conair's Selectronic 6 controls provide users with individual controls at each of the loaders in a central vacuum loading system. The Selectronic 6 is the latest in a long legacy of Conair Selectronic "distributed I/O" controls.

Sel 6 is available in two configurations:
Selectronic 6-24, with 24 Volts AC outputs and
Selectronic 6-120 with 120 Volts AC outputs.

Sel 6-24 is fully compatible with existing Selectronic 5 systems and Sel 6-120 is fully compatible with existing Selectronic 4+ systems. The primary distinction of Selectronic 6 is the text window that provides users with a readout of loader functions as they occur and programming capability using precise digital time and count settings in lieu of rotary knobs used on older versions of Selectronic.

SPECIFICATIONS

SPECIFICATIONS

New Digital Control

For precise, easy conveying system operation

The Selectronic 6 tells you what's going on with only a glance, and uses precise, reliable, digital electronics for operation, programming and alarm functions.

New Features

Alphanumeric Readout

- The 16 character backlit display lights up when the loader is enabled and tells the operator exactly what's happening in simple and easy-to-understand terminology.

Pushbutton Data Entry

- No more approximate settings with rotary knobs. Precision operating parameters are simple to enter via the membrane pushbuttons, secured against unqualified use and simple to repeat. Perfect for ISO 9000 operations.

Compact Size

- The modular, elegant aluminum extrusion is designed specifically for its function and couples to the loader's terminal box, or it may be remote mounted.

Special Security Features

- Designed for easy day-to-day virgin and regrind load time changes, set-up programming and special functions are hidden away for supervisory access only.

Remote Control

- Easily adapted between loader mounted and remote control with the addition of a simple bracket and an extension cable.

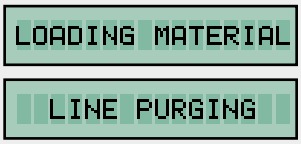
MODELS	Selectronic 6-24	Selectronic 6-120
Output Voltage		
Output	24 VAC	120 VAC
Control Dimensions inches {mm}		
A - Height	6.375 {161.9}	6.375 {161.9}
B - Width	4.25 {107.9}	4.25 {107.9}
C - Depth	3.75 {95.25}	3.75 {95.25}
Control Weight lb {kg}		
Installed	5.5 {2.5}	5.5 {2.5}
Shipping	7.0 {3.2}	7.0 {3.2}
Power Supply Dimensions inches {mm}		
D- Height	7 {177.8}	5 {127.0}
E- Width	8.5 {215.9}	6.5 {165.1}
F- Depth	5.125 {130.2}	4 {101.6}
Power Supply Weight lb {kg}		
Installed	12.5 {5.7}	12.5 {5.7}
Shipping	14.0 {6.4}	14.0 {6.4}
Power Supply Voltage Requirement		
120V/1 phase/60Hz	10 amps	5 amps

SELECTRONIC 6 CONTROLS
Model SEL 6-24 and SEL 6-120

Stay informed...
with helpful status, alarm and programming messages like these...

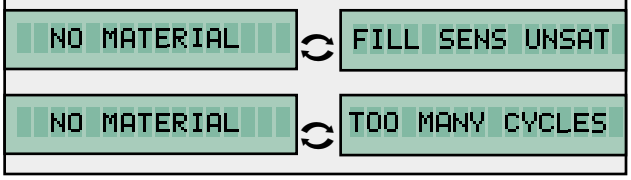
Status Messages

Precise status messages automatically appear at every step of the loader's operation, indicating loading, blowback, dumping, purging, etc.



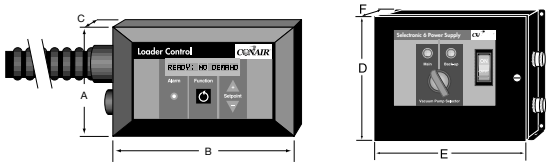
Alarm Messages

Alternating messages automatically appear as alarm conditions occur, along with an on-board LED alarm light. "No Material" alarms alert you to the problem as well as the probable cause. An output is also generated to drive external lights, buzzers or horns, if desired.



Programming Messages

Messages logically prompt the user through setting the loader's operating parameters. Regrind seconds, for instance, are easily changed with the up and down arrows, and the layers setting (secured against unauthorized use) may be set using the "D" (default) setting for automatic layer control, or the user may enter a specific number.



CALCULATING SELECTRONIC SYSTEM CABLE LENGTH:

Total the distance from the power supply to the last loading station. Account for reasonable slack at each loading station for connections, cable routing, etc.

Junction boxes must be provided to connect between the system cable and each Selectronic control.

SPECIFICATION NOTES:

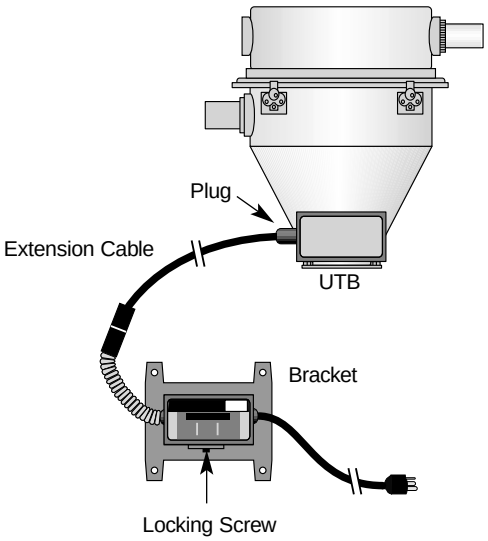
Selectronic system cable is 18 gauge, 8 conductor shielded. Specifications can change without notice. Check with a Conair representative for the most current information.

INSTALLATION

LOADER CONTROL INSTALLATION/ WIRING

CAUTION: *Controls mounted to the loader are never intended to be used as a handle to lift the receiver or provide balance assistance to users during maintenance, etc. Injury could result.*

Bracket



Selectronic 6 loader controls may be either flange mounted directly to the loader's terminal box or remote mounted.

Flange mounting
The aluminum housing of the Sel 6 control directly interfaces with matched extrusion details of Conair aluminum (silver) terminal boxes. For older, existing (black) terminal boxes from Conair, an adapter plate between the control the terminal box allows direct connection.

Remote Mounting
Remote controls consist of a separate control box (which may be temporarily mounted to the loader's terminal box for ease of shipping) but must still be installed independent of the loader installation.

The separate remote control mounting bracket provides the ability to mount the control where desired. Mount the bracket to any firm vertical surface, locating the locking screw at the bottom of the bracket. Then insert the control so that the tabs of the bracket interface with the top extrusion detail of the control and swing the control into the bracket and secure the bottom with the small screw. Be sure to locate the control within the length of the supplied remote control and Selectronic System Interface cables and route the cables away from hot surfaces or moving parts. Remote control cables may be joined together for longer remote control distances.

Loading controls in a Selectronic 6 system utilize a single, shielded, 8-conductor cable to connect all controls in the system with the Selectronic 6 Power Supply. This Selectronic System Cable starts at the Power Supply (usually located near the vacuum pump) and ends near the loader furthest from the Power Supply. For connections at each loader control, a junction box must be provided (for example, a ten loader system will have ten Selectronic 6 controls connected to ten junction boxes connected to the Selectronic System Cable). Each junction box will allow the Selectronic System Cable to be spliced, providing a 3-way "T" junction near each loader. At the bottom of that T junction, a 25 foot long "System Connection Cable" will be connected. This 25 foot connection cable is provided along with the Sel 6 control and is fitted with a quick-disconnect circular connector that interfaces directly with the control itself. The junction box end of the cable is provided with bare wires and the cable may be shortened as needed for a neat installation.

LOADER CONTROL INSTALLATION/ WIRING

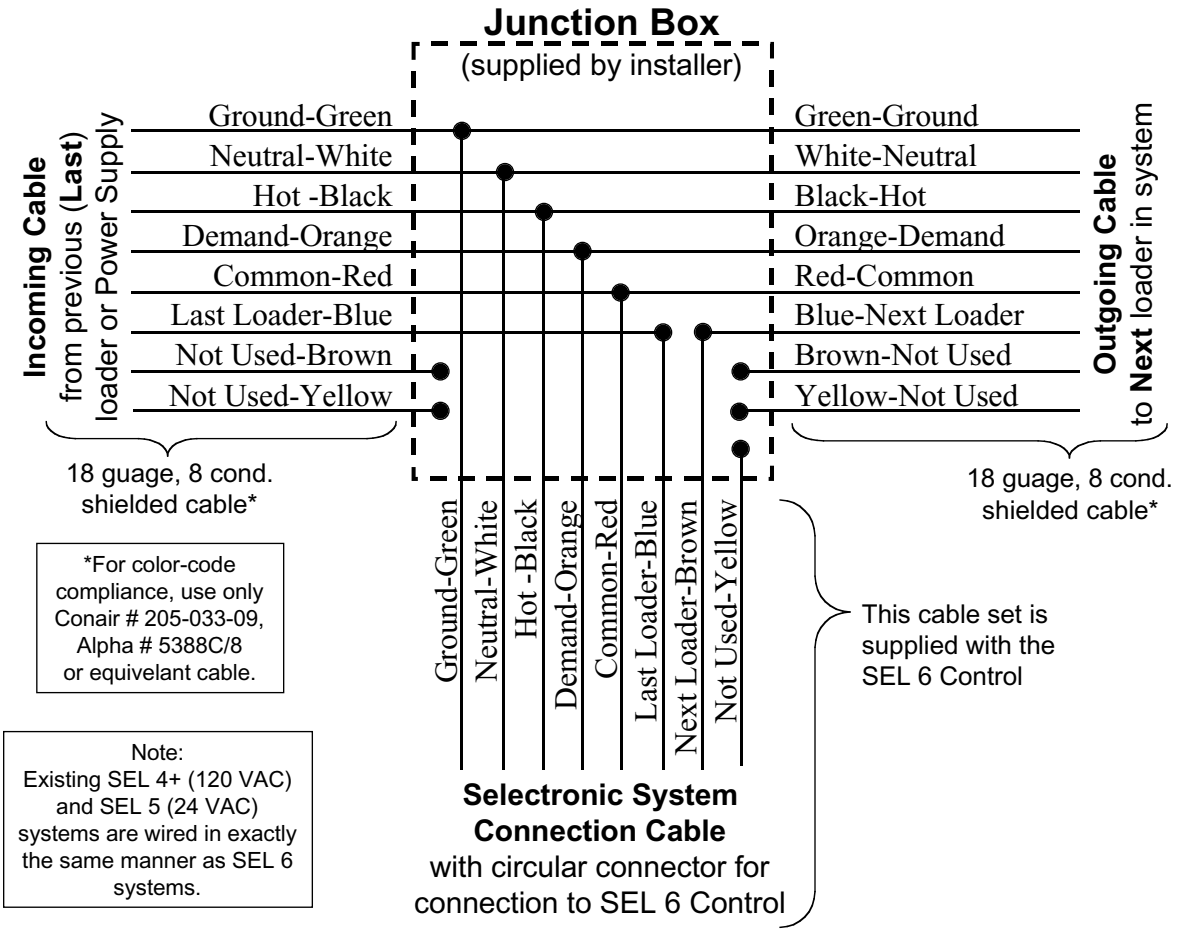
Carefully lay out the path of the 8-conductor Selectronic System Cable from the Power Supply to each loader in the system and plan the location of each junction box (must be provided separately), required for every control in the system. If the Selectronic System Cable must be located near high amperage lines, be sure that the lines cross at a right angle to minimize the effect of the high amperage EMF on the Selectronic System.

Selectronic 6-24 systems utilize lower voltage signals (24 volts and under) to communicate between loading controls and the Power Supply. Selectronic 6-120 systems utilize both 120 volt and lower voltage signals.

NOTE: *Connections within the "T" junction box at each loading station are not wired simply "color to color". Refer to the wiring diagram below to assure that the "last loader" and "next loader" connections are followed carefully to prevent erratic system operation.*

NOTE: *Install the Selectronic wiring as appropriate for your local and industrial electrical codes.*

IMPORTANT: *Route cables away from hot surfaces, away from high amperage cables and away from conveying lines that can create harmful static electricity.*



POWER SUPPLY INSTALLATION/ WIRING

NOTE: *The connections made inside the Selectronic 6 Power Supply enclosure vary slightly depending upon whether the system is a Selectronic 6-24 (using 24 VAC signals with the loaders) or Selectronic 6-120 (using 120 VAC signals).*

The Selectronic 6 Power Supply provides power to all of the controls in the system via an 8 conductor cable (Selectronic System Cable) that connects all of the loaders with the Power Supply. The Power Supply must be plugged into a 120 VAC receptacle. The Power Supply also provides "start" signals to the vacuum pump(s) used in the Selectronic system and these same start signals are also used to energize the dust collector(s) used in the system.

Although the Power Supply may be located anywhere that is convenient to the user, it is most frequently installed near the vacuum pumps/dust collectors to minimize the wire length of the interconnections and to allow easy on/off access for performing pump and/or dust collector maintenance.

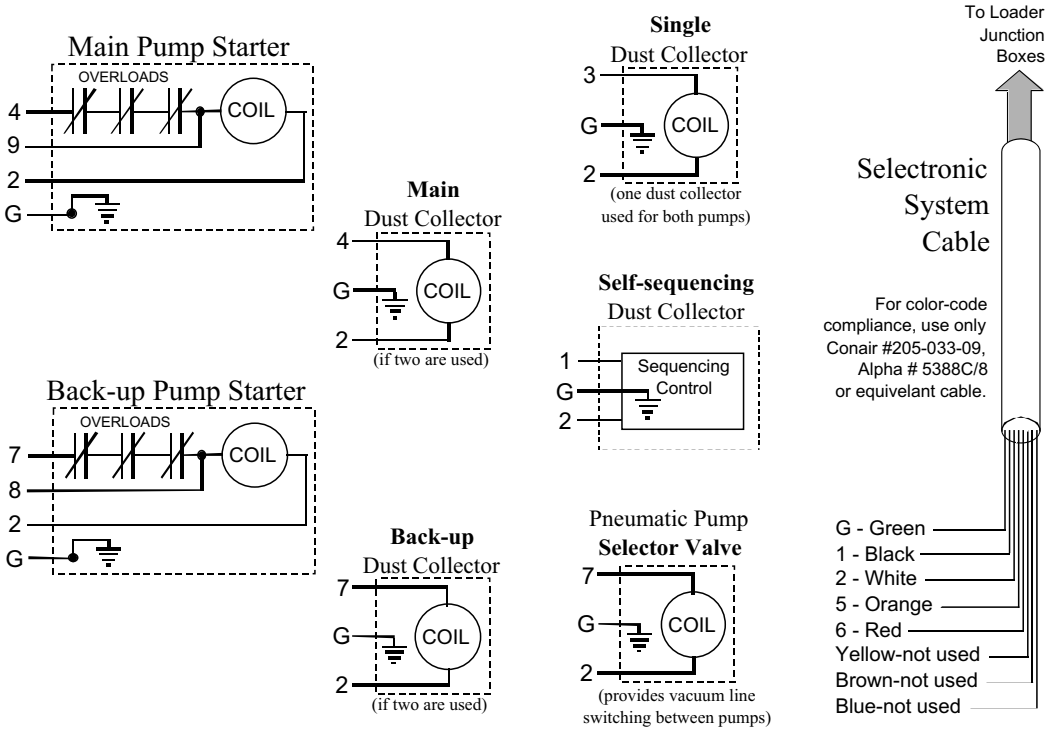
The Power Supply enclosure is equipped with both wall and top surface mounting accommodations and it should be mounted to a firm surface using the supplied holes and 1/4 inch diameter bolts. The Power Supply should be located so that access to its switches and viewing of its lights is unobstructed. Mounting the Power Supply to the pump is not recommended due to vibration.

Power Supply Wiring

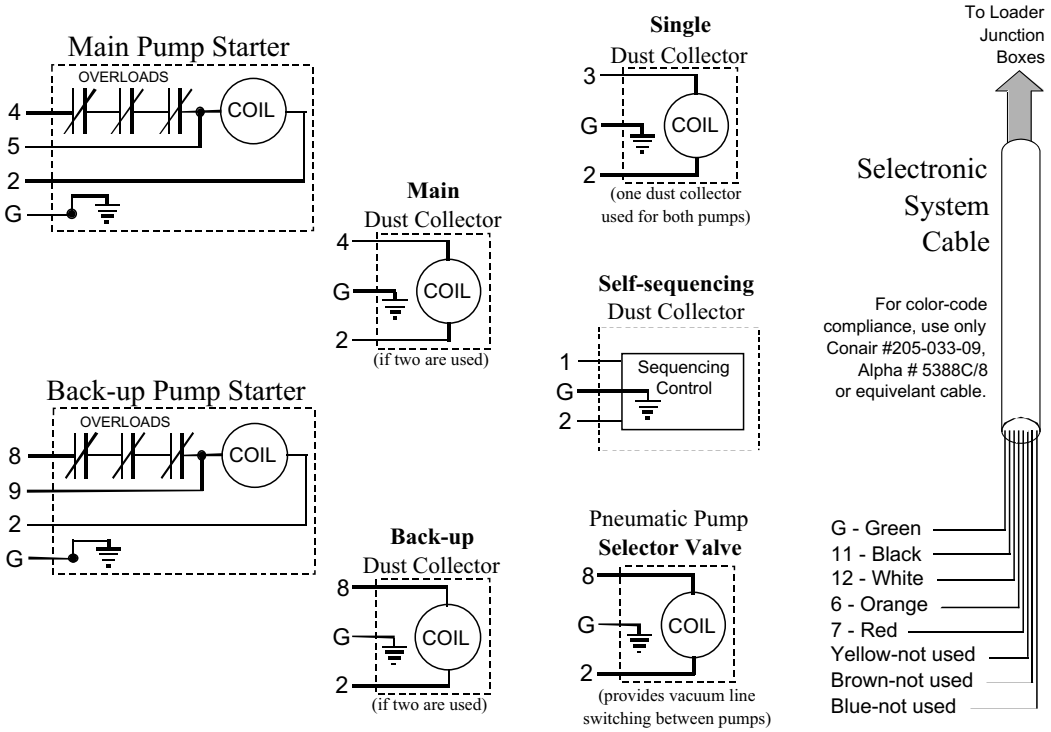
Cord grips are provided to allow interconnection with the Selectronic System multi-conductor cable needed to communicate with the individual loader controls, the pump(s) and the dust collector(s). A 120 VAC cord set is provided for the incoming power.

Refer to the accompanying illustrations for a full understanding of the Power Supply's wiring. Terminal strips are provided inside the Power Supply for all connections.

Selectronic 6-120 (120 VAC) Power Supply Wiring



Selectronic 6-24 (24 VAC) Power Supply Wiring



SELECTRONIC 6-24 POWER BOOSTER INSTALLATION

NOTE: *Power Boosters are not required for Selectronic 6-120 systems.*

IMPORTANT: *Since Selectronic 6-24 systems utilize lower voltage (24 VAC) signals to provide communications between the loading controls and the Power Supply, the length of Selectronic System Cable and the number of controls on the system must be taken into consideration. Cable lengths over 300 feet and/or the use of more that 10 controls can exceed the capabilities of the 24 Volt transformer located within the Selectronic 6-24 Power Supply. In these instances, a Selectronic 6-24 Power Booster, with an additional 24 VAC transformer for the system provides a "power boost" for the part of the system beyond 10 controls and/or 300 feet of system wiring.*

The Power Booster may be installed directly in line with the Selectronic System Cable and will rarely require attention, once installed. The Power Booster requires 120 VAC power and a cord set with plug is provided. Instructions for wiring the Booster into the Selectronic System Cable are provided right inside the Booster and terminal strips are included for all the incoming and outgoing Selectronic System Cable conductors.

The Power Booster should be installed within 300 feet of Selectronic System Cable from the Selectronic 6-24 Power Supply, and/or after the tenth Selectronic 6-24 control. For safety reasons, the Power Booster is relay-latched to the primary Selectronic System that starts at the Power Supply so that power to the entire system, including the section after the Power Booster, is de-energized when the Selectronic 6 Power Supply is turned off.

OPERATION

GENERAL CONTROL OPERATION

SELECTRONIC 6

Conair's Selectronic 6 digital read-out controls provide the greatest reliability, ease of use and full featured operation. Its text window is back-lit to provide easy visibility and when illuminated, indicates that the control is "enabled". The text window provides not only the ability to program the loader's operations but also actively displays control functions as they occur. Alarm conditions are also displayed if and when they occur, accompanied by the front panel's alarm light.

A combination on/off/reset switch and circuit breaker is located on the right side of the control.

A wide variety of control functions are built into every control and these functions may be employed as needed through the manipulation of the three simple buttons on the control's front face. The square button, with the circular arrow symbol is called the "function" button and allows the user to "page" through all of the available functions of the control, one at a time. The functions will be displayed on the text window as they are selected. As the function button is pressed, the function list will repeat once all of the available functions have been paged through, as suggested by the symbol on the function button. Note that many functions are 'hidden' from view, until the appropriate "security level" is accessed.

Up and down arrows are also supplied on the control face and allow programmed settings to be increased or decreased (these buttons are only effective when programming sections of the control are accessed). In addition, combinations of these three buttons are used to access different portions of the control's programming operation.

Four "Security Levels" (A, B, C and D) are built into the control that permit both easy viewing of common operating parameters, but also prevent unauthorized and/or unintentional changes being made to lesser-used or more critical loader functions. Security levels "B" and "C" are accessed by pressing the "function" and "up" button simultaneously, whenever the control is turned on. While in each security level, changes may be freely made as needed, functions changed, etc. If no changes are made within 10 seconds, the control will default back to Security Level "A", providing only a display of virgin and regrind times, with no ability to make changes.

The following chart shows what parameters and capabilities are available at each Security Level and what steps are required to switch between these levels:

Security Level "A"	For viewing (only) of virgin and regrind vacuum-on time settings (no changes can be made).	May be seen by pressing the function button from the status display screen.	This may be the only functioned required by processing floor personnel to confirm loader settings (only)
Security Level "B"	Displays and allows changes to be made to virgin and regrind time settings.	May be accessed from the Status display or Level A by pressing the function and up arrow buttons at the same time.	
Security Level "C"	Displays and allows changes to be made to the virgin, regrind, unload (vacuum off) and purge times, the number of blowback pulses, regrind layers, and alarm settings.	May be accessed from Level B by pressing the function and up arrow buttons at the same time.	If attempting access from Level A, Level B must be accessed first.
Security Level "D"	Provides the ability to change the operating characteristics of the control and use (or not) of a fill sensor.	May be accessed by pressing the function and down arrow buttons at the same time and holding them both for 5 seconds.	CAUTION: Security Level D makes radical changes in the way the control operates and should not be entered without a full understanding of operating parameters.

A complete set of operating parameters accompanies each function of operation of the Selectronic 6's capabilities. ***See Control Functions, Settings and Readouts, section 7,*** for a complete listing of all of the details of each function of operation; but note that the control is programmed to allow the user to make only logical programming choices in each function of operation. The control is designed to accommodate standard loader functions and may be depended upon to perform logically, unless used in a manner inappropriate to its design.

GENERAL LOADER OPERATION

NOTE: *Selectronic loading controls typically sequence from the loader closest to the pump, through to the loader further from the pump. Only loaders that are expressing a "demand" will operate. Loaders without demand are skipped.*

Loading is accomplished by inserting the feed tube(s) into the material supply, turning on the control, allowing material to flow into the loader and adjusting the virgin (and/or regrind) load time as described below.

Start of the loading function is triggered by the demand switch, integrated into the gravity discharge valve on the bottom of the loader (or provided as a separate switch or sensor). On a standard, hopper-loading receiver, when the flapper on the loader is closed by its own counterweight, it is an indication that the receiver 'sees' no material below it and must provide material by starting a load cycle. The standard demand switch is a "reed" type that magnetically interacts with a small magnet, located on the flapper weldment. As the flapper closes and the magnet gets close to the reed switch, the switch closes, providing a demand signal to the Selectronic 6 control. The control then works with the other Selectronic 6 controls in the system to begin loading, in sequence, as soon as the vacuum pump becomes available.

When vacuum power is available for the specific loader with a demand (when it becomes the loader's "turn") the individual control's timed functions take over, providing a complete load cycle with the vacuum sequencing valve, ratio valve if provided, common material line valve if provided, unloading functions, etc.

Other demand switch types that can start these functions include sensors or rotating level switches.

After discharging material into the receiving hopper below the loader, the cycle may repeat or the discharge flapper may become lodged open with the material that was discharged from the loader. If the flapper closes, the cycle will repeat. If the flapper is held open by the material, it is an indication that there is no need for another load cycle and the loader will wait until the material level falls, the flapper closes, the magnet comes close to the reed switch and triggers another load cycle.

Selectronic 6 compatible loaders are capable of operating in several different functions, based upon the options that were supplied. The following instructions explain these functions, starting with the most common versions.

SINGLE MATERAL HOPPER LOADING

In this configuration, the only control settings required by the user are the input of "VIR SECS" plus feed tube settings (known as "air-to-material" settings). Feed tube setting are covered separately under "Setting Feed Tubes", located in the loader manual.

Virgin seconds may be input at Security Level B by using the up or down arrow buttons to adjust vacuum-on time accordingly. The loader comes equipped with a factory preset of 30 seconds. Load time should be set with enough seconds to 'just fill' the vacuum loader. 'Just full' is indicated by material no longer flowing in the material conveying line.

NOTE: *Too much loading time may pack material in the conveying line, prematurely blind the filter screen and possibly cause material shortages in the system by wasting valuable vacuum time attempting to fill a loader that is already full. Too few seconds set on the control may starve your process with numerous on and off cycles that yield too little material transfer.*

Often times, virgin load time is best adjusted by trial and error, to provide sufficient vacuum-on time to "just fill" the loader before terminating.

If your loader is equipped with a "fill sensor" (a capacitance sensor, mounted in the loader body), the load time should be set slightly higher than typical load time, since the fill sensor will terminate vacuum loading once it 'sees' material in the loader, during loading. In this way, a correctly adjusted fill sensor will optimize loading cycles automatically. In addition, the Selectronic 6 control will provide an 'alarm' signal (plus an alarm output) if the fill sensor does not see material by the time the load time setting expires. To avoid nuisance alarms, the load time setting should be set amply more than the required number of seconds it takes to fill the loader. *See "Alarms", section 7,* for more information on alarms and alarm settings. Note that the fill sensor must be adjusted for proper sensing of the loaded material, ***see "Sensor Adjustments", section 6.***

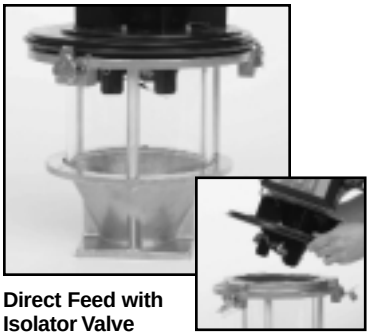
Additional control settings are provided within the control that are factory set to common parameters but are accessible and changeable via Security Level "C". *See "OFF SECS", section 7,* for more information, but the factory setting of this parameter is usually very acceptable for most operations and does not need further adjustment.

SINGLE MATERIAL, DIRECT FEED LOADING

Direct Feed loaders operate exactly the same as Hopper Loading versions, but may include a sensor on the sight glass base. Follow all of the guidelines listed under ***"Single Material, Hopper Loading", section 5*** and then refer to the ***"Sensor Adjustments", section 6*** to properly adjust the demand sensor located on the direct feed sight glass. Once in operation, the sight glass material level may be adjusted by moving the demand sensor on the sight glass up or down, to provide a larger or smaller reservoir of material on the machine throat. Material level may be minimized if the material has been dried and you wish to minimize the possibility of moisture regain or if you desire quick material changes with minimal leftover material in the glass. (Material level may be increased if the shot size or throughput rate of the process requires a greater 'on hand' supply of material.)

If the loader is equipped with an "Isolator Valve" (a small flapper valve below the loader section and inside the top section of the sight glass), the loader may be using an integrated 'reed' switch within that flapper assembly to provide demand sensing and no external sensor is supplied.

In this case, the material level in the sight glass will be determined by the isolator valve's flapper position and no level adjustment within the glass is possible. Some functions may include both an isolator valve and a height-adjustable sensor. In this case, the sensor holder will be restricted from being raised to within sensing range of the isolator valve, to prevent erroneous signals from occurring by the sensor being triggered by the iso valve.



Direct Feed with Isolator Valve

TWO MATERIAL LOADING

Follow all guidelines listed under ***"Single Material Loading", section 5***. The operational parameters are exactly the same, except that the operator will now be loading two materials during the vacuum-on cycle through the use of the 'ratio' function and a ratio valve mounted on the inlet of the loader.

Two control settings govern the operation of the ratio valve: The "regrind seconds" (listed as REGRIND SECS and accessible through Security B) and "regrind layers" (listed as REGRIND LAYERS and accessible through Security Level C).

The regrind seconds setting simply adds additional load time to the operation of the loader to allow for the appropriate amount of time to be dedicated to transferring regrind material. In operation, virgin seconds (VIR SECS) plus regrind seconds (REG SECS) totals the overall vacuum-on time of the loader's loading function. Both of these values are viewable in Security Level A, by simply pressing the function button and changeable in Security Level B.

The regrind layers setting provides an alternating of the virgin and regrind plungers of the ratio valve as material is loaded, so that materials are somewhat mixed as they enter the loader. Based on this setting, the control will use the time settings established for virgin and regrind and alternate the valve as many times as set on the regrind layers setting indicates during the course of each loading cycle. This setting is viewable and changeable in Security Level C.

To make selecting the appropriate number of layers as easy and logical as possible, a "default" setting ("D") is provided that uses the regrind seconds setting to determine a logical number of layers for the ratio valve. This feature allows the user to select either "D", where the control will decide how many layers should be employed, or you may input a number between 1 and 5, where the virgin and regrind time settings are ignored and the ratio valve will switch the number of times selected. The use of the default "D" selection is encouraged unless special conveying parameters are required.

NOTE: *The ratio function of any loader, should not be relied upon for accurate proportioning of materials. The loader takes responsibility for providing the air flow required for vacuum loading plus opening and closing of the ratio valve in the approximate time sequences as set on the controls. The loader has no way of interpreting the differences in material bulk density, flow characteristics and conveying distances that can all affect the delivery of the desired proportions of each material. In fact, the loader cannot determine if material is even flowing through each conveying line. Adjusting and compensating for these parameters are the responsibility of the user.*

TWO MATERIAL LOADING
(CONTINUED)

IMPORTANT: *It is highly recommended that the ratio function be employed only for applications that allow the full use of all generated regrind as it is generated.*

In this case, the ratio function provides a valuable asset to users, by efficiently loading an approximate proportion of regrind along with virgin materials.

Virgin time (VIR SECS) will usually need to be adjusted with the use of the regrind time (REG SECS), to compensate for the stop/start cycling of each material as the ratio valve switches and the differences in flow characteristics between virgin and regrind. Conveying distance differences must also be taken into account. Sluggish material conveying characteristics can inhibit the use of too many layers. Observing both the sight glass windows on the ratio valve and the material flow in the flex hose will help to guide the simple adjustments to achieve your desired ratio loading performance.

HOPPER LOADER OPERATION WITH POSITIVE DISCHARGE OPTION

Loaders equipped with positive discharge valves operate exactly the same as other functions but instead of simple gravity discharging their load of material at the conclusion of loading, the discharge valve is 'driven' open by an air cylinder linked to the flapper. The duration of this discharge valve open cycle is controlled by the "vacuum off" setting (shown and adjustable in Security Level C as "OFF SECS") and may be adjusted as needed to provide more or less valve open time. The amount of "off time" the loader is set for will provide the amount of positive discharge valve open-time.

Loaders with Positive Discharge valves do not employ integrated demand reed switches on their discharge flappers nor demand sensors, but instead employ rotary switches to sense the level of material in the hopper below the loader and provide a demand signal. The rotary switches are equipped with a motor driven paddle that when stopped by material, indicates a full hopper below the loader (no demand). When the paddle is allowed to move freely, it is an indication of no material and a demand signal is provided to the control. Rotary switches are provided with long shafts to allow the placement of the material sensing (paddle) area far enough below the loader to prevent any material interference with the positive discharge valve's open and close motion.

With the positive discharge feature included, material is more likely to flow easily out of the loader without relying on the material weight to push open the discharge valve. This feature also helps in the loading of hoppers that may contain pressurized air (like high CFM drying hoppers) that may restrict the free motion of gravity discharge flappers.

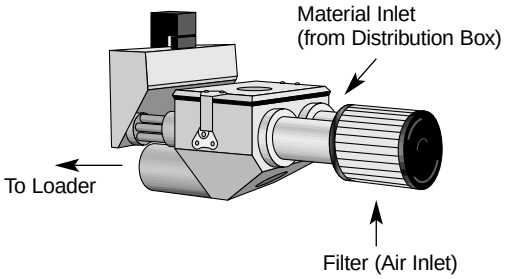
HOPPER LOADER OPERATION WITH REMOTE DEMAND SENSOR

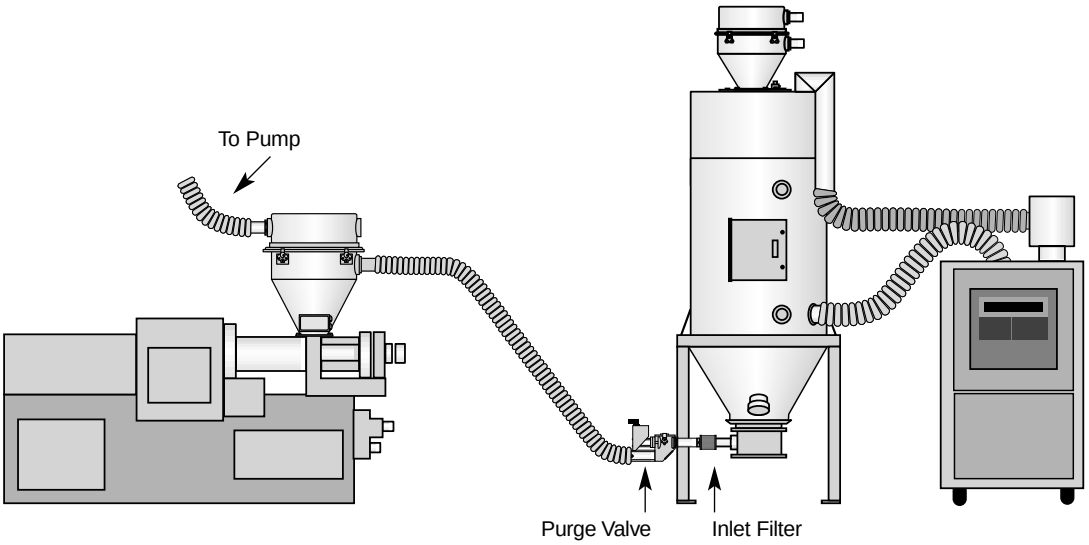
Loaders equipped with a remote demand sensor operate exactly the same as other hopper loading functions but use a capacitance demand level sensor connected to the receiver terminal box via long cable with a plug, versus other methods of demand level sensing. These remote sensors provide the ability to trigger a load cycle from a user-defined location instead of directly below the loader. This option is very useful for drying hopper or blender supply hopper applications where the user can define exactly how much of the hopper will be filled (by the location of the sensor) instead of always filling the hopper to the top. These remote demand sensors are commonly installed to view the material level through a sight glass and must be adjusted to "ignore" the glass, yet "see" the material inside the hopper, ***see "Sensor Adjustments", section 6.*** If the length of cable supplied with the remote demand sensor is not sufficient to reach your desired sensing location, extension cables are available from Conair.

In some cases, it may be desirable to utilize the remote demand sensor option alternately with the integrated demand switch or other sensing method. In these cases, the remote demand sensor may be simply unplugged from the loader's terminal box and substituted with the alternate sensing device. Note that the loader will not operate without a demand switch input provided to the terminal box.

PURGE OPERATION

Receivers utilizing the purge option provide a signal for an optional Purge Valve and a lengthening of the vacuum sequencing valve's open time for that loader, designed to evacuate the conveying line of material. This feature is controlled by settings accessible through Security Level C called "PURG SECS". This purge setting extends the vacuum-on time, beyond the virgin and/or regrind settings. In operation, virgin seconds (plus regrind seconds, if used) plus purge seconds totals the overall vacuum sequencing valve's open time at that loader. In sequence, the receiver's vacuum valve will open for the duration set on the virgin and/or regrind time settings, at which time a purge signal is triggered while the vacuum sequencing valve remains open for the duration of the purge seconds (PURG SECS). The output signal is provided at the terminal box's "purge" output receptacle and is designed to actuate a material valve at the material source to shut off the inlet of material into the conveying line, while the vacuum continues. If the purge seconds are set to zero, there is no extension of the vacuum load time.





PURGE OPERATION
(CONTINUED)

NOTE: *When the purge option is utilized, virgin "(and regrind, if used) time settings must allow enough space in the vacuum loader for the material that will enter during the purging phase of operation. The use of a fill sensor is not recommended. Through trial and error settings, the virgin time and purge time settings must be coordinated to assure an adequate load of material into the conveying line during the normal loading cycle and then sufficient purge time to allow the material to be pulled with vacuum air into the loader body. The longer the conveying line, the more purge time will be required. If too much virgin time is set, there is a chance that material may actually stay, or even be packed into the conveying line, instead of being purged. With too little load time, the material line may be easily cleared of material but the loader may not be adequately filled to maintain production.*

The material valve used for purging is very similar in construction to the ratio valves used for loading regrind along with virgin material, but it is equipped with an air inlet filter on the valve's left inlet. The right inlet is plumbed to the material source and the singular outlet is plumbed to the loader. During normal loading, the purge valve allows material to pass from the material source, plumbed to the right inlet, through the valve, into the material conveying line and onto the loader. At the conclusion of normal load time, purge time is started while the purge signal output switches the valve to shut off the material inlet but allows the vacuum sequence to continue for the duration of the purge time setting. During this time, air flows through the purge valve's filter and 'chases' the material in the conveying line on through to the loader, purging the line clean. Once purge time expires, the vacuum sequencing valve closes and the loader proceeds with its standard unloading functions. The purge valve returns to its material-line-open state.

SENSOR ADJUSTMENTS

GENERAL SENSOR SENSITIVITY ADJUSTMENTS

Capacitive Level Sensors use their own on-board electronics to sense the presence or absence of material located in front of the flat face of their cylindrical bodies and trigger loader control functions as a result. Typical uses are as fill sensors, to indicate a full loader condition and terminate the loading cycle and demand sensors, to start loading by indicating the absence of material in a bin or sight glass. Before use, the control must be set to accept and operate with the specific sensor function being used and the sensor must be set to detect the material being conveyed and to ignore the sensor's surroundings (metal, sight glasses, etc.) as well as set to ignore material dust that may collect on the sensor face. In some cases, sensors must be reset for each new material being conveyed.

Setting the Control to Accept Sensors

See "Jumper Settings", section 8, to assure that the control is formatted (via internal jumpers) to "read" the specific sensor (or switch) being used. If the sensor in question was provided as a part of your original equipment, these settings were made at the factory.

General Sensor Sensitivity Adjustments

Every sensor is equipped with a multi-turn screwdriver adjustment, located within a small hole on the corded end of the sensor body. Most are also equipped with an indicator light to signal response by the sensor. With the sensor in the correct position for operation, ***see Demand Sensors, section 6***, the adjustment screw can be rotated clockwise for more sensitivity and counter-clockwise for less sensitivity. The small signal light on the sensor illuminates when the sensor does not "see" material. As a guide, the light will go off, when the sensor detects something in front of its face. It should be adjusted to ignore glass and adjacent surfaces and fine tuned to respond only to the presence of material. This may require several back and forth adjustments to optimize the setting.

DEMAND SENSORS

Demand sensors are utilized in two different ways: In direct contact with material or through a sight glass.

When coming in direct contact with material, it is recommended that the sensor be initially adjusted for sensitivity and then re-adjusted, once the sensor becomes coated with typical material fines, common to plastics conveying.

Sensors that sense material through glass or plastic windows must be adjusted to “ignore” the window and sense only the material on the other side. These adjustments must be made with the material to be conveyed, so it suggested that they are made during normal operation. Furthermore, the sight glasses may become coated with a certain build-up of plastic dust (from static electricity attraction, etc) and the sensor should be adjusted (and/or re-adjusted) to ignore this condition. Sensors that are mounted in movable brackets that allow different levels to be set must maintain the same distance setting from the sight glass to assure consistent operation, or be reset for sensitivity. Optimum distance from the sight glass for a sensor is the thickness of a piece of paper. This setting permits the closest possible contact with the glass or window, yet is back just enough to be isolated from heat variations that could effect sensor operation.

FILL SENSORS

Fill sensors are installed right in the loader body and come in direct contact with material, as it is being loaded. If set correctly, the time the material contacts the sensor is brief, since loading is terminated by the sensor and unloading usually occurs immediately afterwards. If possible and practical, the loader's unload function may be interrupted by holding the discharge valve closed, long enough to set the sensor's sensitivity. If not possible, trial and error settings may be made during repeated loads to set the sensor to terminate the loading cycle. As with other sensor adjustments, it is recommended to check the setting after the loader has operated for a period of time, and re-adjust it if need be, to allow the sensor to 'ignore' material dust that may have collected on the sensor face.

CONTROL FUNCTIONS

STATUS MESSAGES

These messages will automatically appear as the functions take place in normal operation.

READY: NO DEMAND

This status message indicates that the control is turned on, but there is no need for loading (no demand) at the loaders demand level switch (reed switch, demand sensor below the loader or rotating level switch)

WAITING FOR VAC

This status message indicates that the control is turned on, a demand signal is being received, but loaders elsewhere in the system are currently loading, using the vacuum power of the central vacuum pump. In normal operation, this loader will sequentially load, in turn, as soon as vacuum power is available.

LOADING MATERIAL

This status message indicates that the loader's vacuum sequencing valve is open and the loader should be moving one material (virgin or regrind) into the loader.

LOADING VIR + REG

This status message indicates that the loader's vacuum sequencing valve is open and the loader should be moving both virgin and regrind materials into the loader, via a ratio valve in the proportions set by the Virgin and Regrind timer settings.

VAC OFF: DUMPING

This status message indicates that the loader's virgin and/or regrind vacuum on-time has expired, the vacuum sequencing valve has closed and the loader should now be dumping material. On positive discharge loaders, the valve on the bottom of the loader should be open while this message appears. This message appears when no blowback pulses are set on the control.

DUMP + BLOWBACK

This status message indicates that the loader's virgin and/or regrind vacuum on-time has expired, the vacuum sequencing valve has closed and the loader should now be dumping material and the blowback function (if provided on the loader) should be taking place to clean the loader filter with compressed air. On positive discharge loaders, the valve on the bottom of the loader should be open while this message appears. This message appears when any number of blowback pulses are set on the control.

ALARM MESSAGES

LINE PURGING

This status message indicates that the virgin and/or regrind load times have expired, but the vacuum sequencing valve remains open while the material purge valve is closed to material flow and open to air flow to clean out the material conveying line.

Alarm Messages

These messages will appear automatically as the alarm conditions that cause them occur. An output signal is created as these messages occur and the alarm light LED on the control face is illuminated. The output signal is 120 Volts AC for Selectronic 6-120 controls and 24 Volts AC for Selectronic 6-24 controls.

NO MATERIAL alternating with

FILL SENS UNSAT

This alarm message indicates that the user-set virgin and/or regrind load times have expired, but the fill sensor in the body of the loader has not been satisfied. This message will occur with every loading cycle until the load time is increased (to allow material to reach the fill sensor) or the sensor has been adjusted to properly "see" the material being loaded, ***see "Adjusting Sensors", section 6.***

NO MATERIAL alternating with

ADJ FILL SENSOR alternating with

RESET CONTROL

This alarm message indicates that the fill sensor in the body of the loader continues to "see" material after a load and a dump cycle have taken place. This is usually an indication that the fill sensor is out of adjustment (too sensitive) and needs to be adjusted to a less sensitive setting, s***ee "Adjusting Sensors", section 6***. Note that this alarm message halts loader operation until the sensor is adjusted and the control reset (turn it off for 3 seconds, then back on).

ALARM MESSAGES (CONTINUED)

NO MATERIAL alternating with

TOO MANY CYCLES

This alarm message indicates that the loader has made a number of attempts to load material but has not yet successfully satisfied the demand sensor of the loader. The number of loading attempts may be set by the user, ***see "Program Messages"... "SET ALARM NO.",*** and this alarm message only appears after the loader has successfully loaded enough times to satisfy the demand sensor at least once after energizing the control.

NO MATERIAL alternating with

99 ATTEMPTS alternating with

RESET CONTROL

This alarm message indicates that the loader has made 99 attempts to load material but has not yet successfully satisfied the demand sensor of the loader (usually indicating a total loss of material at the source). At this point the control is prompting the user to correct the material flow problem and reset the control (by turning it off for three (3) seconds, then back on) to allow the receiver another 99 attempts to successfully load material and satisfy the demand sensor.

NO LOAD TIME SET

This alarm message indicates that no load times (virgin or regrind) have been set on the control, therefore the loader will not operate. Virgin (VIR SECS) and/or regrind (REG SECS) values greater than zero (0) must be set into the control via Security Level B, to eliminate this message and allow the loader to operate.

PROGRAMMING MESSAGES

These messages will only appear as the control is stepped through programming Security Levels A, B, C or D, as explained below. Each heading is accompanied by its typical, factory-set value.

Security Level A Messages (obtained by pressing the function button once)

VIR SECS → 30

This message tells the user how many seconds of virgin load time are programmed into the control. No changes are possible at this level, only viewing of the setting. Thirty (30) seconds is the factory set default.

REG SECS → 0

This message tells the user how many seconds of regrind load time are programmed into the control. No changes are possible at this level, only viewing of the setting. Zero (0) seconds is the factory set default.

Security Level B Messages (obtained by pressing the function button and the "up" arrow button at the same time),

SET VIR SECS → 30

This message allows the user to program how many seconds of virgin load time are needed to fill the loader hopper. Thirty (30) seconds is the factory-set default, but this setting may be adjusted higher or lower with the up and down arrow buttons. Full range is 0 to 120 seconds.

SET REG SECS → 30

This message allows the user to program how many seconds of regrind load time are needed to supply regrind material. Zero (0) seconds is the factory-set default, but this setting may be adjusted higher or lower with the up and down arrow buttons. Full range is 0 to 120 seconds.

PROGRAMMING MESSAGES (CONTINUED)

Security Level C Messages (obtained by pressing the function button and the "up" arrow button at the same time, pressing the function button once, and then again pressing the function button and the "up" arrow button at the same time)

SET BB PULSES →0

This message allows the user to set the number of blowback pulses that will occur after the vacuum loading function has taken place (usually required only on powder loaders). Factory default is 3 and the up and down arrows allow the setting to be increased or decreased. Full range is 0 to 7 pulses. Note that increasing the number of pulses may slightly decrease the throughput capabilities of the loader by dedicating more time to filter cleaning.

SET PURG SECS →0

This message allows the user to set the purge time in seconds. This value should be changed only if a purge valve is installed on the material line. Factory-set default is 0 and the up and down arrows allow the setting to be increased and decreased accordingly. Full range is 0 to 120 seconds.

SET ALARM # →3

This message allows the user to set the number of times the loader will attempt to load without satisfying the demand sensor, before an alarm occurs. Factory-set default is 3 and the up and down arrows allow the setting to be increased and decreased accordingly. Full range is 0 to 99 attempts. Note that this alarm can only occur after the loader has successfully satisfied the demand sensor at least once after energizing the control. This feature keeps the control from creating nuisance alarms while attempting to fill large hoppers or bins for the first time. Once satisfied for the first time, the control will "count" load attempts and alarm if not satisfied within the alarm attempts entered. Note that setting this parameter to "0" disables all demand sensor alarms. ***See "Alarm Messages", section 7,*** for more information.

SET OFF SECS → 8

This message allows the user to set the length of time that the loader will not operate between loading cycles or the "vacuum off-time". This setting is useful for assuring that the loaded material has enough time to gravity dump from the loader through the discharge valve. An output signal is provided as this function is energized and on positive discharge loaders, this setting determines how long the discharge valve is opened at the end of a loading cycle. Factory-set default is 8 seconds and the up and down arrows allow the setting to be increased and decreased accordingly. Full range is 3 to 999 seconds. The upper end of these settings may be used to operate a loader only periodically, instead of by the demand switch on the bottom of the loader. A popular application is for a loader that is used to keep a granulator empty by offloading regrind into a bin (that may never become filled). The off-seconds may be set very high so that the loader only operates every 10 minutes (600 seconds) instead of constantly.

SET LAYERS # → D

This message allows the user to set the number of layers desired when loading both virgin and regrind materials. This function only occurs when there are seconds entered into both virgin and regrind functions. This setting then determines how many times during a single loading sequence that the ratio valve will switch between virgin and regrind to encourage layering of the material in the loader, so the material will mix when dumped into the receiving hopper below the loader. The flow characteristics of the virgin versus the regrind, the differences in material line lengths, and the differences in load times must all be considered before deciding on the proper number of layers for each loading application. To make these choices easier, a factory-set default setting ("D"), based on the amount of regrind time that has been entered, is included in the possible setting range. Its use is encouraged to prevent confusion, at least until a specific need for an alternate number of layers settings is defined for your application. In addition to D, a 0 to 5 setting range is provided, and any of these settings will override the default.

NOTE: *For unloading applications (where the loader is used to off load a device, like a granulator, instead of "loading" a device, like a machine hopper) the "SET ALARM #" should be set to zero. This will defeat alarm conditions that can be created because the loader may never be 'satisfied' by filling the vessel it is installed above. See: "**Programming Messages"..., SET ALARM #".***

SPECIAL PROGRAMMING FUNCTIONS

NOTE: *Selectronic 6 controls are commonly re-programmed by Conair to accommodate factory supplied options and special functions at the time of order. Returning to factory-default settings will ignore these changes and return the control to its most basic operational mode, as shown in "Programming Messages".*

Returning To Factory Defaults:
In the event of confusion with your Selectronic 6 control, as the result of unauthorized programming, the addition or removel of optional features, etc., it may be desireable to return your control to its original factory default settings. These settings are listed in the section titled "Programming Messages" and are shown adjacent to each category described. Note: Selectronic 6 controls are commonly re-programmed by Conair to accommodate factory supplied options and special functions at the time of order. Returning to factory-default settings will ignore these changes and return the control to its most basic operational mode, as shown in "Programming Messages".

To return the control to factory default settings, use the on/off switch to turn off the control, wait three (3) seconds and while holding the UP arrow button, turn the control back on. Hold the UP button for up to several more seconds until the screen information appears. All factory default settings will then be in place as listed in the "Programming Messages" section of this manual and further changes (ie: the use of a fill sensor, ratio times, etc) may be re-entered as needed.

CHANGING OPERATIONAL FUNCTIONS

*⚠ **CAUTION:** These functions should be manipulated with caution since they can alter the entire operation of the control. Some functions must be entered in coordination with jumper settings inside the control, as described below. All special functions are entered by accessing Security Level D, obtained by pressing the function button and the "down" arrow button at the same time and holding for 5 seconds.*

Security Level "D":

These functions should be manipulated with caution since they can alter the entire operation of the control. Some functions must be entered in coordination with jumper settings inside the control, as described below. All special functions are entered by accessing Security Level D, obtained by pressing the function button and the "down" arrow button at the same time and holding for 5 seconds.

SET LOAD+HOLD OFF

This special function is selectable to allow specially-equipped, positive discharge loaders to be used in applications where material is held within the loader after it is loaded until needed by the process, below the loader. In this application, the demand input (a closure of the demand input terminals) is sent to the control by outboard equipment and is the signal the loader looks for to dump the material from the loader. The loader automatically re-loads material after dumping, without the need for a traditional demand signal from below the loader. This function is useful for loss-in-weight blending systems, where the loader must provide an instant load of material to weight-sensitive supply hoppers below the loader, specifically when needed by the weight-sensitive blender. The function may be turned on or off and is factory-set to off. Users should never turn this function on unless the loader and control are specifically outfitted or modified for this function.

When Load and Hold function is employed, the following jumper changes need to be made inside the control
(see page 8-3 for detailed information on jumpers).

1. A jumper needs to be installed on the top, #1, jumper position (Demand A).
2. The bottom jumper, #5, needs to be removed.

NO FILL SENSOR or

FILL SENSOR USED

This feature changes the control's operation to terminate loading with the use of a fill sensor, installed in the loader body. It also provides alarm functions, minimizes load time and other benefits. To be employed, a proper sensor must be installed in the loader body, the proper jumper arrangement needs to be made inside the control and the feature needs to be turned on. It is usually factory-set to NO FILL SENSOR (unless a fill sensor was originally installed) but may be easily changed to FILL SENSOR USED, using the up or down arrows.

CHANGING OPERATIONAL FUNCTIONS
(CONTINUED)

NOTE: *Normal operation with factory supplied sensors or switches does not usually require any changes to jumper settings, since the jumper settings are established at the factory. Faults associated with sensor inputs should first be examined for other, more obvious flaws, before incorrect jumper settings are considered.*

Typically, the jumper settings inside the control are already made to accept the common sensors used by Conair for this function, so the only change necessary is to turn this function on to the FILL SENSOR USED display on the control. If the installed sensor does not work properly and is suspected to be a model not specifically selected by Conair for use with this loader and control, then the jumpers inside the control may also need to be changed, ***see Input Jumper Settings, section 9.***

SELECTRONIC 6 or

MOTOR LOADER

This feature changes the control to operate in a self-contained (motor loader) function or in a central vacuum, series wired loader function (Selectronic 6). Users should never change this setting. It is factory-set to SELECTRONIC 6 and should be left unmodified.

HIGH CONTRAST or

LOW CONTRAST

This selection allows the control's text window to be optimally viewed in high contrast from a straight-on viewing angle versus a lower, low contrast viewing angle. It is factory set to HIGH CONTRAST.

JUMPER SETTINGS/ TERMINAL BOX CHANGES

JUMPER SETTINGS

Your Selectronic 6 control box operates by receiving input signals from switches, buttons and sensors, then responds with timed outputs to valves, etc. In order to operate correctly, the control must be set up to properly interpret the input signals of specific input sensors and switches, considering source/sink operation, normally open/normally closed, etc. The control is set-up by the placement of small printed circuit board jumpers within the control, directly behind the control face.

Use of Standard Input Devices

In general, your Selectronic 6 control is configured to operate, as standard, with input devices that work in the following manner:

Demand Input: The input device (sensor, paddle, reed switch, etc) should provide a signal closure when the loader requires material. This is commonly expressed as the demand input device providing a "Close on Demand" signal. This logically means that the input device is "open", when the loader is 'satisfied' or does not need material. For capacitive sensors, the form that the sensor takes should be "sink".

Volume Fill Input: The input device (sensor, paddle, etc) should provide a signal closure when the loader becomes filled with material during loading. This is commonly expressed as the fill input device providing a "Close on Fill" signal. This logically means that the input device is "open", while the loader is filling or is at rest. For capacitive sensors, the form that the sensor takes should be "sink".

With input devices configured as described above, no technical changes are required with the controls. “Demand” inputs matching the description above should be readily accepted by the control. “Fill” inputs matching the description above may be easily programmed by the user by a simple programming change in the Security D level, identified as NO FILL SENSOR USED, which may be easily changed to FILL SENSOR USED, ***see Changing Operational Functions, section 7.***

USE OF NON-STANDARD INPUT DEVICES

If input devices, other than those described above as "Standard Input Devices" are intended to be used with your Conair DustBeater, changes are required in the control to allow the control to 'read' these devices and respond appropriately.

A series of jumpers are provided inside the control that adjust the control's operating parameters to allow use of non-standard devices like demand inputs that "open on demand", or are "source" form, or fill sensors that are "source" form.

Instances where these changes might be needed are with the use of special input devices for special applications, use of a Conair Selectronic 6 control on competitive equipment and in some cases the use of newer Selectronic 6 controls on older generations of Conair loaders.

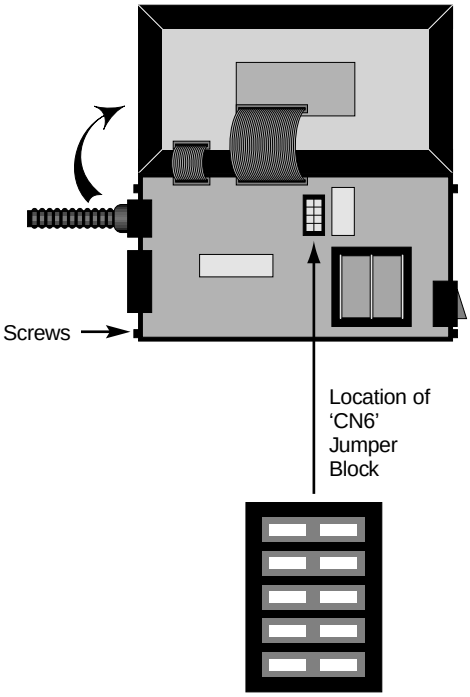
To change the input operating parameters for your Selectronic 6 controls, you will need to know the specifications of the input device you wish to employ:

For Demand Input Devices:
- Close on Demand (Standard) or Open on Demand (non-Standard)
- Sink Form (Standard) or Source Form (non-Standard)

For Fill Input Devices:
- Sink Form (Standard) or Source Form (non-Standard)

Once the specifications are known, doublecheck that the "Use of Standard Input Devices" operation does not already accommodate your input device. If it does not, the internal jumpers may be changed to accommodate your non-standard input device.

CHANGING INPUT DEVICE JUMPERS



To change the jumpers, first disconnect power to the control by disconnecting the line cord from the power outlet. The control's backlit window should be dark, regardless of the position of the on/off/reset switch. The control does not need to be removed from its installed position, unless there is an obstruction directly above its enclosure.

Refer to the illustration at the left. Carefully remove the four screws that hold the front face to the control box, gently swing the front face up and place it on top of the control enclosure, exposing the insides of the control and the backside of the control face. Be careful not to put any strain on the ribbon cables that connect the front face with the control box.

Note the location of the jumper block labeled as "CN6" within the control, adjacent to a wiring harness connector and behind the wires leading to that connector. The connector may be removed for ease of studying the jumper settings and/or making changes by gently prying between the right side of the connector and its holder with a flat bladed screwdriver. The connector may then be drawn straight out of its socket and moved aside, to allow full visibility of the jumper settings. Take care to not separate the wires from the connector.

The CN6 jumper block contains 5 jumper positions, each consisting of a pair of pins. Some of the pin pairs are connected with small jumper modules. Starting at the top position, #1 and #2 correspond to Demand sensor or switch conditions and are referred to as "Demand A" (#1) and "Demand B" (#2). The next two positions are "Fill A" (#3) and "Fill B" (#4) and correspond to Fill sensor or switch conditions. The bottom position (#5) is a "Logic Jumper" for demand inputs.

The following chart shows the required jumper connections that need to be made for alternate (non-standard) input devices.

Input Demand Device (non-standard) "Open on Demand" operation	**Jumper Change** Remove jumper #5 (demand logic)
Input Sensor Form (non-standard)	
Sourcing Demand Sensor	Move jumper from #1 position to #2 position
Sourcing Fill Sensor	Move jumper from #3 position to #4 position

UNIVERSAL TERMINAL BOX (UTB)

Your Selectronic 6 is provided with a junction box that provides receptacles for all input and output devices and provides a connection point for the umbilical cable that connects the control to the loader. This box will accommodate all current and future options for your Selectronic 6 and is commonly referred to as a Universal Terminal Box or "UTB".

The UTB is provided with the most common outputs available for use on the outside of the box. In the event that you add options to your loader and the appropriate output connection cannot be found on the UTB, changes may be made inside the UTB to accommodate your new option. A full explanation is also printed inside the lid of the UTB, for your convenience.

The cover of the UTB may be removed to make all terminations available for change.

1. Remove all power from the loader and/or motor of the DustBeater by disconnecting the power cord and performing lock out/tag out procedures according to your company policies and safety codes.
2. Remove the loader control box from the UTB by the method detailed in ***"Control Installation-Remote Control", page 4-2.***

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

Do not operate the equipment at power levels other than what is specified on the the equipment serial tag and data plate.

UNIVERSAL TERMINAL BOX (UTB)
(CONTINUED)

3. Remove the front cover of the UTB by turning the screw head in the middle/bottom of the front cover counter-clockwise to unlock the cover, then use the small indentation below the screw to reach below the cover and work it away from the UTB.
4. Notice the instructions on the back side of the UTB cover, for future reference.

Output signals that are currently connected to the receptacles on the outside of the UTB are joined together at the vertically mounted terminal strip near the right side of the box. The color coded outputs are as follows:

Black.....Load
Brown. .....Ratio Valve
Red/yellow. .....Positive Discharge
(air operated discharge valve)
Red/blue.....Purge Valve
Blue.....Blowback
Violet .....Alarm Output

Four receptacles are provided on the outside of the UTB and they may be used as needed to provide a connection point for output devices. Unused, color-coded output conductors are insulated and tucked inside the UTB so that if an alternate output is required, they may take the place of an unnecessary output position by wiring it to the terminal strip. Unused output wires should be insulated (taped) against potential short circuits and tucked back inside the UTB.

Output receptacles that are re-assigned a new output function, should be labeled according to their new function, for future reference. Labels for standard output assignments are permanently printed to the side plate of the UTB and removing them should not be attempted. Instead, labels are contained on the backside of the UTB cover plate that may be separated from the main label and placed over the original labels on the sideplates.

WARNING: Electrical shock hazard

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

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 maintenance. Only qualified personnel should perform procedures that require access to the electrical enclosure while power is on.

TROUBLESHOOTING

CONTROL PROBLEMS

⚠ **WARNING: Disconnect power and air sources.** Always disconnect the pump from the loading control, main power source and compressed air source before removing the dust collection canister. This prevents the pump from starting during servicing, which could cause personal injury from flying debris or moving parts.

Problem	Possible cause	Solution
Loader will not cycle.	**Are all electrical connections correct?**	Check to make sure loader control is plugged into power source. Check to make sure the UTB is connected to the loader control. Check to make sure the sensor(s) is connected to the UTB.
Loader does not respond. Sensors do not respond.	**Shorted output device. Wrong voltage applied to unit. Internal Fuse #F1 is open.**	Replace fuse #F1.
No back light on control face.	**If unit was opened for any reason, possible mis-alignment of internal connectors opened internal Fuse #F2.**	Examine connections inside. Correct connections. Replace fuse #F2.
Sensors do not respond, but control illuminates.	**Sensor(s) incorrectly wired. Internal Fuse #F3 opened.**	Correct sensor wiring. Replace fuse #F3.
Sensors do not respond. Loader is skipped in sequence, even though demanding.	**Sensor(s) incorrectly wired. Selectronic wiring fault. Internal fuse #F3 opened.**	Correct sensor wiring. Correct Selectronic wiring. Replace fuse.
Display shows Demand or Waiting for Vac, but loader is skipped in vacu-um sequence.	**Short in Selectronic System cable or cable mis-wired. External Fuse #F4 (on left side of control) is opened.**	Correct cable wiring or replace cable. Replace fuse.

Fuse descriptions:
F1=3.15 Amp, 8mm Round, inside control **F2** and **F3**=0.5 Amp, 8mm Round, inside control
F4=0.5 Amp, 250 VAC, 5x200mm, outside control