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USERGUIDE
IMB-020F 1/92 SEN

Selectronic 4

Loading System

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

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"SELECTRONIC 4" INSTRUCTIONS

GENERAL SYSTEM DESCRIPTION – INTRODUCTION

The "Selectronic 4" Conveying System has one pump which provides vacuum conveying power to a number of loading stations in the system. Each loader in the system has an individual control box to provide the proper loading cycle and to sense when material is needed at the station. These individual control boxes are wired together in a "series" configuration to allow loading of one unit at a time – in sequence. The pump control enclosure is the first in the series and directs power, through multi-conductor cable, to the individual station control enclosures. (See Figure 1.) Please refer to the manual(s) for the particular type(s) of loader in your system.

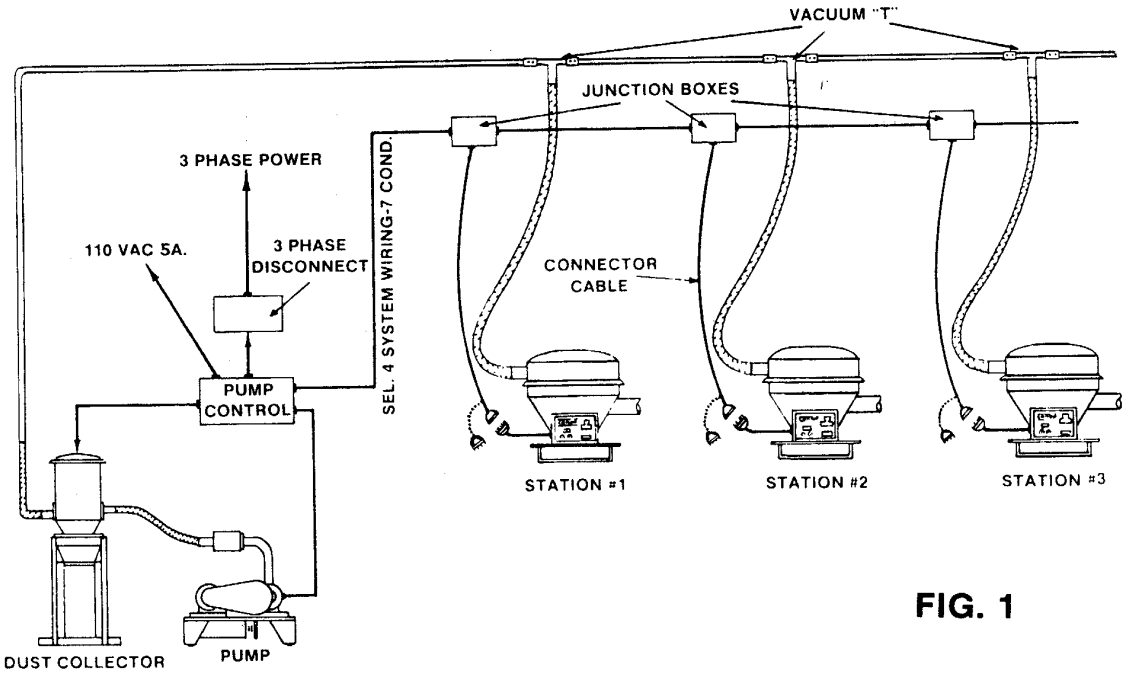

FIG. 1

A Selectronic 4 System can include several different types of loaders (single material pellet loader, ratio loader, Autocolor, powder loader, etc.). The loader controls are tied together using plug and socket assemblies, connecting the controls to the control cable. Loaders may be interchanged or removed from the system with no system modifications (the maximum number of units on one vacuum pump is determined by conveying rate requirements).

CONTROL DESCRIPTION

A Selectronic 4 Loading System is composed of the following electrical components:

- Pump Control (located at the vacuum pump)
- Seven Conductor Cable (connected from loading station to loading station starting at the pump control)

— Junction Boxes (customer supplied electrical tie-in points for the loader and the seven conductor cable)

Plus one or more of the following loaders operated by their own control enclosures:

— Single Tube Pellet Loader

— Ratio Pellet Loader

— Single Tube Powder Loader (Gemini)

— Ratio Powder Loader

— Autocolor Loader (includes adaptor box to electrically interface with Selectronic 4)

Pump Control

The pump control enclosure performs several functions: 115 volt power for the system; 3-phase power for vacuum pump; ON/OFF control of the entire loading system; and circuit protection. The dust collector for the vacuum line also electrically connects to this control.

STATION CONTROLS

All Selectronic 4 controls supplied with Conair loading equipment utilize the same microprocessor printed circuit board. This board is modified through the use of jumpers and auxiliary components to perform the specific functions necessary for each type of loader. The following paragraphs describe the operation of the different types of loaders available for your loading system.

Single Tube Loader

This loader provides simple pellet loading into the hopper and automatically cycles the vacuum signal according to the load time set on the control. Unload time for the loader is set on the microprocessor board, and the loader will continue to cycle until the discharge valve level switch indicates that the receiving hopper beneath the loader is full.

Ratio Loader

This loader is equipped with a ratio mixing valve which allows the loading of two materials (virgin and regrind), into the vacuum hopper. The control is equipped with a second pot on the control face that determines the percentage of regrind desired in the load. The ratio valve will alternate between virgin (left) and regrind (right) during the vacuum cycle to provide some pre-mixing. The rate at which the valve alternates is set with pot. 2, located on the PC board within the control.

Single Tube Powder Loader

This control is provided with a signal from the capacitance load sensor in the vacuum hopper to determine when the loader is full. This sensor, when tripped, terminates the vacuum cycle for that loader, and passes the signal on to the next

loader. In this application the load control knob acts as an override timer that terminates the load cycle if the sensor is not tripped within the time period set on the control. A vibrator is provided on the vacuum hopper to aid in material flow during unloading. Operation of this vibrator is a function of the unload timer, pot 1, on the PC Board.

Ratio Powder Loader

This loader is equipped with a ratio mixing valve that alternates between virgin (left) and regrind (right) during the load cycle in order to premix the two materials. The virgin control acts as an override timer to pass on the vacuum signal if the material level in the vacuum hopper does not trip the load sensor before the time set on the virgin control. The regrind control sets the desired percentage of regrind desired in relation to the time set on the virgin control. Valve cycling is determined by pot 2 on the PC Board within the control.

Unit Control Adaptor: (for use with Conair Autocolor) See Figure 2

This adaptor box is provided to permit the installation of an Autocolor into a Selectronic 4 Loading System. The Autocolor operates from its own remote control enclosure, and determines load and unload times according to its own programmed cycle, independent of the Selectronic Loading System. The unit control adaptor receives the load demand from the Autocolor and converts it into a signal for the Selectronic System, to direct vacuum power to the Autocolor.

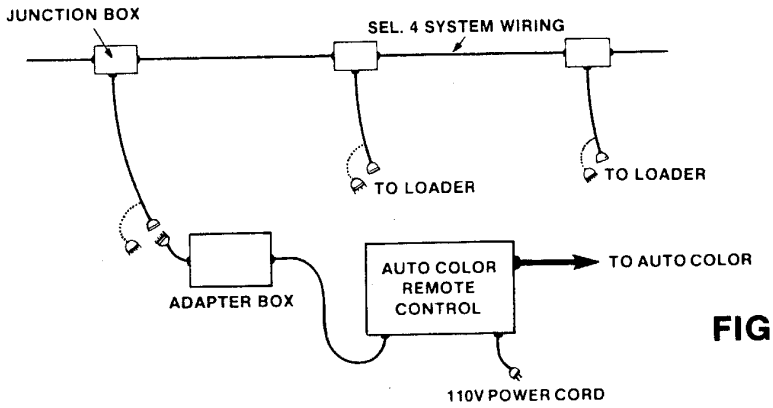

FIG. 2

Selectronic 2 To Selectronic 4 Unit Control Adaptors: See Figure 3

In order to permit newer-style Selectronic 4 Loaders to work within existing Selectronic 2 Systems, an adaptor box can be provided. This adaptor converts the 110 volt control signals of the Selectronic 2 System into the lower, 12 VDC signals of Selectronic 4 Loaders. The adaptor box is provided with a multi-pin connector that matches the Selectronic 2 System. This adaptor box (see Figure 3) is connected in place of the jumper plug, on the last Selectronic 2 Loader in your system. A junction box, described in "Installation", can then be wired in, from this adaptor. This will permit adding a number of Selectronic 4 Loaders onto your system.

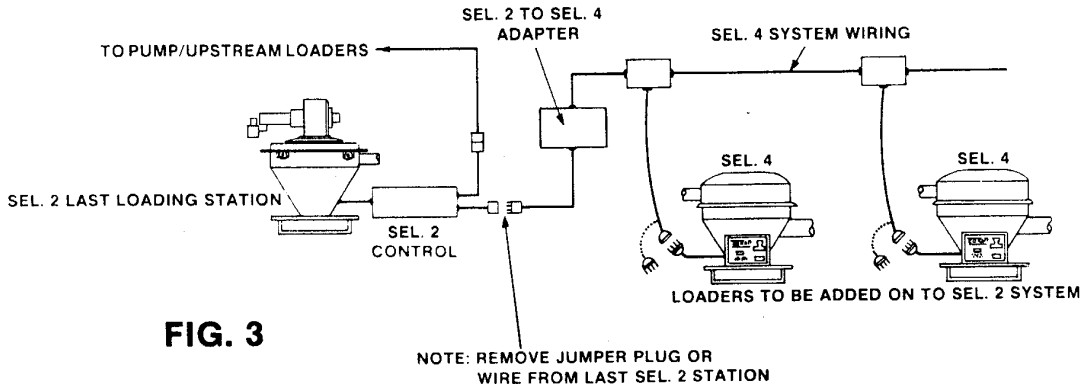

FIG. 3

SELECTRONIC 4 CONTROL SYSTEM ACCESSORIES

Remote Control Enclosures (optional)

Any single tube or ratio loader may be supplied with a remote control enclosure for ease of operation. These are highly recommended for loaders used on drying hoppers to prevent the high heat conditions from damaging the electronics of the control. A small terminal box is provided on the loader flange to distribute cables, necessary for loader operation, and to receive the multi-conductor cable, coming from the remote control. Electrical connection to the Selectronic System is performed at the remote control enclosure.

Cabling Junction Box And Connector Cable: See Figure 4.

To simplify installation of Selectronic 4 Loading System, a Cabling Junction Box is recommended in close proximity to each loading station. This box provides a tie-in point for the 7 conductor cable coming from upstream loaders, going to downstream loaders and tying in to the loader control via the connector cable. The junction box may be purchased locally, or provided by any electrical contractor. Color coding is explained in Figure 4. The connector cable provides a singular connection between the loader control and the junction box. The control end of this cable is equipped with the multi-pin connector matching that of the control.

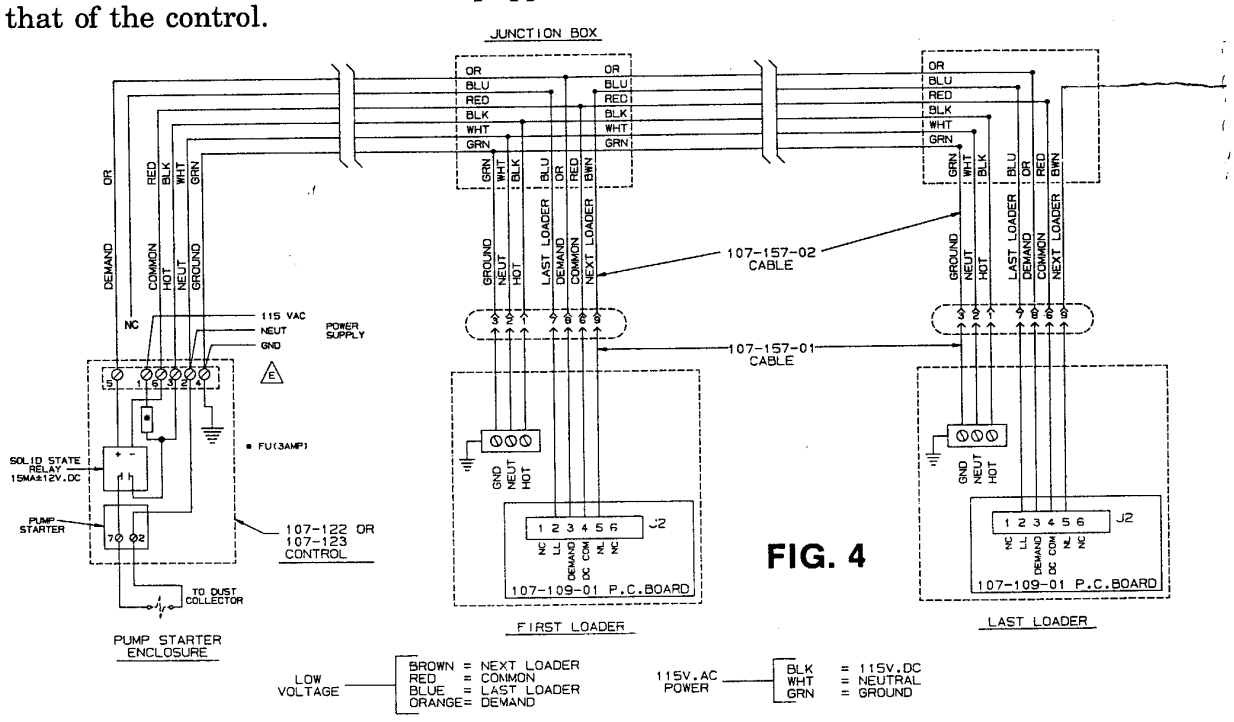

FIG. 4

Station By-Pass Jumper Plug: See Figure 4

In the event of a problem, or when working on a particular loading station that requires electrical disconnection of power, a jumper may be installed in place of the loader. This jumper, plugged into the connector cable, provides necessary circuit continuity past that loading station when the control is disconnected. Stations may be removed from the system without interfering with the normal operation of remaining loaders with the jumper.
NOTE: The jumper is not needed if the loading station removed from the system is last in the Selectronic line. The by-pass jumper is attached to the station connector cable, shipped with each loader.

ELECTRICAL SYSTEM INSTALLATION

The Selectronic 4 System includes a central vacuum source coupled to a number of loaders. The entire system is operated by the individual control boxes at each loader. As shown in Figures 1 and 4, each loader control is connected to the series wiring using junction boxes and connector cables.

System Wiring

Standard installation consists of mounting the cabling junction boxes near each loader. Seven conductor cable is then connected in and out of these boxes, starting at the pump control, going to station 1, then 2, etc. (see Figure 1). If local electrical codes permit, the cable can be tie-wrapped to the vacuum line (see "Vacuum Tubing Installation", below). The connector cables, with their multi-pin connectors are then installed from the junction boxes to the loader controls.

Power to the loaders in the system is supplied by this seven conductor, 18 gauge cable, which runs from the pump control through each loading station junction box, in a series configuration. It should be noted that both 110 VAC and 12 VDC power travels through this cable. Wiring should be performed by a competant electrician and double checked with a volt-ohm meter for continuity, ground, and short-circuits. Should the 110V power accidently contact a 12V conductor, damage to the microprocessor(s) could result.

Pump Control Wiring

Two types of power to the system are connected into this enclosure (see Figure 1). The control power for the system is 110 volt, 60 HZ, single-phase (hot, neutral and ground). Be sure the polarity of the control power source is correct (the "hot" leg must pass through the fuse).

Three-phase power for the operation of the pump motor is also supplied to this control; see the pump nameplate for voltage, and size your 3-phase power accordingly. A wall-mounted disconnect switch with fuses should be installed to provide electrical isolation. Observe all local electrical codes.

Connection should also be made to the dust collector solenoid valve with the cable provided on the dust collector. The collector is wired into the pump starter circuit so that whenever the pump is energized, the popper valve in the collector opens to vacuum.

After wiring installation is completed, the loader controls are connected to the system by plugging the multi-pin connectors on the controls into their mating connectors, coming from the junction boxes (see Figure 4).

TUBING INSTALLATION

Vacuum Tubing Installation

Typical Selectronic installations utilize overhead supports to run vacuum lines from the vacuum pump to the loaders in the system. Flex hose is recommended for the connection to the vacuum pump to permit the removal of the pump protection filter housing for maintenance. Flex hose should also be utilized for lines in and out of the Dust Collector. (See separate Dust Collector instructions) "Mitered Tees" are used at the individual loading stations to tap off of the main vacuum header to each loader lid. Flex hose, as well as the configuration shown in Figure 5, are recommended for these individual connections.

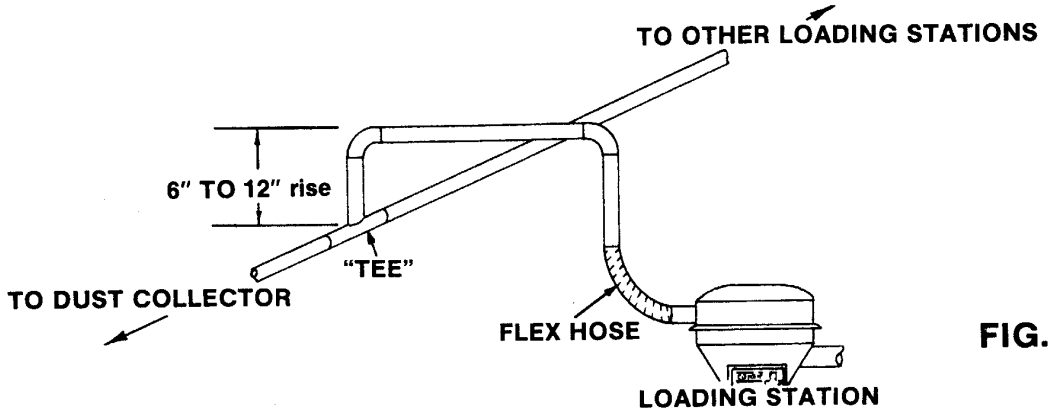

FIG. 5

This configuration will prevent the return of dust and material fines to the loaders once the dust is in the vacuum header. The connection of flex hose from the solid vacuum tubing will facilitate maintenance on the loader, by allowing the popper valve and lid to be swung out of the way, or easily removed.

Material Line Installation

Simple beside-the-press loading is set up by connecting the included flex hose and feed tube to the material inlet of the loader and placing the feed tube in a material container. Smooth material flow is controlled by opening up or closing off the air holes at the top of the feed tube with the flex hose.

For more elaborate common material line set ups that draw material from central storage facilities to a number of machines using the same material; the following guidelines should be followed for the connection of the individual loading stations to this common material line header.

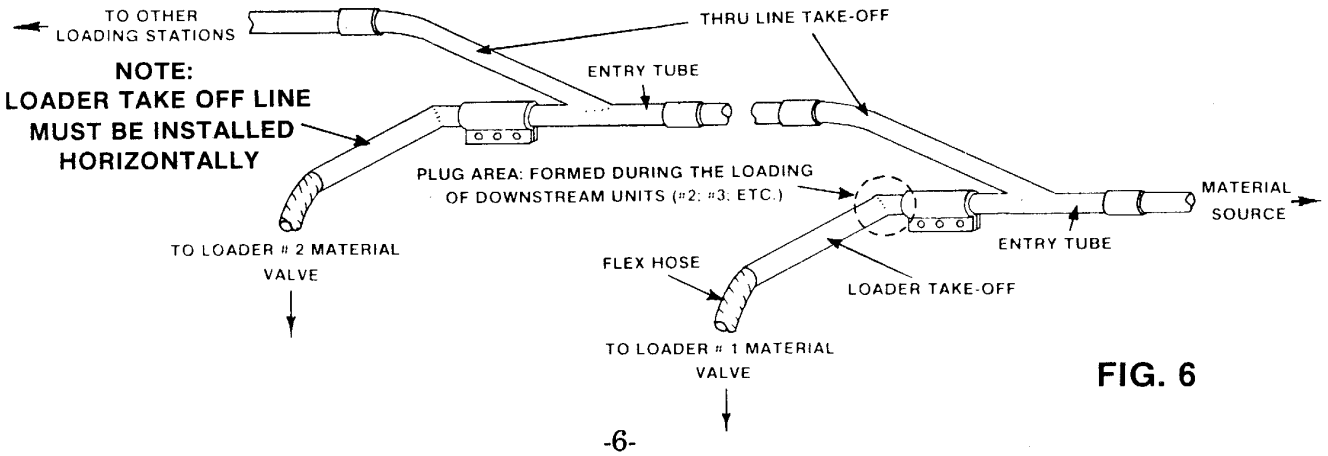

FIG. 6

Proper operation depends on the forming of a small plug in the material lines as shown in Figure 6. The distance from the "Y" to the plug area should be kept as short as possible to prevent an immovable plug from forming. The "thru-line take off" should be installed above the level of the "entry tube." The "loader take off line" should be installed horizontally to prevent the entire material line, from the header to the loader, from filling and creating a large plug. This configuration will work best if the loader closest to the material source is the first load; the second closest next, and so on.

Common Material Line Valves, mounted to the loader material inlet tubes, sequence with each loader for proper distribution of material flow. On loaders equipped with ratio valves, the virgin side of the valve performs the same function, and does not necessitate the use of a line valve.

COMPRESSED AIR INSTALLATION

All loaders in Selectronic 4 installations require connection to a compressed air source providing at least 60 PSI (maximum 90). A compressed air header is recommended, providing clean, lubricated, filtered air to each loader and to the dust collector. Quick disconnect fittings at each loading station allow for easy removal of the loader for maintenance. A manifold or simple connection point is provided on each loader flange. Note that ratio and common material line loaders and Autocolors are equipped with regulators for control of pressure to individual pneumatic components. Never exceed the pressure ratings noted on these regulators-damage could result.

If a compressed air dryer is used, a lubricator is recommended to insure proper operation of air cylinders and solenoids.

START-UP, MOTOR ROTATION, SYSTEM CHECK

A. Before testing the system, turn off the pump control, disconnect power, and turn the "unload time" (pot 1), on the microprocessor board at each station to minimum (counter clockwise). The unload timer on each loader provides extended down time at the conclusion of each loading operation, if ever necessary. Normal operation does not require this unload time increase, and the timer should be set to minimum. Unload time will then be determined by the position of the dump valve: Closed when demanding material; Open when the high material level in the receiving hopper keeps it from closing. This open position of the valve opens the rotary limit switch on which the discharge valve is pivoted and prevents further loading cycles. Once the material level in the receiving hopper drops, the discharge valve will swing shut, restoring circuit continuity, and placing the loader in the material "Demand" condition (indicated on the control).

B. The vacuum pump is shipped with oil but should be checked prior to running. Also, check to see if vacuum hopper, pump and dust collector protection filters are in place. With 3-phase pump power off and at least one loader control turned on and demanding material, turn on the power switch at the pump control box. The starter within the pump control should pull in. Allow it to drop back out, turn the pump control "off", then disconnect the vacuum line at the pump and close the 3-phase switch for the pump to check the rotation. Turn the pump control "on". If air flow is observed to be out of the vacuum connection, direction is backwards. Change any two legs of 3-phase. Air flow should be negative at the pump inlet. Reconnect vacuum line. Unit is ready to run.

C. First, test all single-tube loaders in the system without using material. Turn on the pump control. Turn on the first single-tube loader and be sure it is "Demanding" material. (No material in receiving hopper) Set the timer to maximum. The popper valve should open and the pump should start running. All other vacuum valves in the system should be closed. After two minutes, the valve should close on this loader, and the loading cycle should stop. Testing the loader with no material, as described, means that the "unload", or "off-time" of the loader will be minimal, since the discharge valve of the loader will not prevent the loader from running. After a few seconds, therefore, the loader should restart. Now set the load control to minimum. Repeat this check at all single-tube loaders, observing that each loader cycles according to load time.

D. Next check the ratio loader stations. This procedure is the same as the single-tube units except that the Selectronic Ratio Control cycles the mixing valve. With the "Load" control set to maximum, set the "Regrind" control to 50%. You should observe that the ratio valve cycles between virgin and regrind and provides approximately equal opening of each material line. At the conclusion of the load cycle, the virgin line should close and the regrind open. Unload time should once again be minimal, when no material is used for the test.

E. Next check the Gemini units in the same manner. Operation should be identical to the units described above, except that a vibrator accompanies the unload cycle.

F. Next, check those stations using the unit control adaptor and an Autocolor. These units are also checked to be sure the pump turns on when the unit calls for material and the vacuum valve on the unit functions. Refer to the individual instructions of the units for proper functioning.

G. Once proper operation is confirmed, turn off all units, and proceed with checking each station individually with material. Starting with Station #1, set load time to mid-position. With the material line of the loader connected to a material source (feed tube, distribution box, etc.), observe the flow of material into the loader. Successful, trouble-free vacuum loading is accomplished by drawing an optimum proportion of air and material through the tubing, into the loader. This mixture should provide maximum material movement, but not so much as to cause an immovable block in the material line when vacuum is shut off. Use the distribution box air adjustment tubes, or feed tube holes to provide optimum material flow.

The loader should now be cycled several times, with material, while the load time is adjusted to conform closest to the required filling time of each hopper, plus two to five seconds.

H. When testing ratio units, a balance between virgin and regrind is desired, as determined by your molding requirements. The regrind control permits this ratio to be set on the control face, but once material flow characteristics are established, you may wish to increase or decrease the number of cycles occuring with each loading cycle to minimize load time or maximize material mixing. To do this, disconnect the loader from the system by unhooking the connector cable and turn pot 2, labeled "Layers" on the microprocessor board. This setting establishes the number of movements the ratio valve will make within a given load time.

I. Testing Powder Loaders follows the same procedure, but a load sensor in the vacuum hopper stops loading when it becomes covered with material. To check operation, turn the load time to maximum, and begin to load material. With optimum material flow, the vacuum hopper should fill to the load sensor within a reasonable time determined by material flow characteristics and distance. If it does not, too little sensitivity may be indicated, and the sensor is not detecting the presence of the powder. Adjust the sensitivity screw on the back of the sensor until it detects the density of the powder, but does not prohibit loading due to residual dust tripping the sensor. NOTE: Indication of too little sensitivity is a large amount of dust carry-over in the vacuum line and system dust collector. See the individual powder loader instructions for more details.

Note that in proper operation, the load (and regrind) controls act as load time override adjustments, which, if a problem develops with the material source (no material, feed tube blockage, etc.), will by-pass load sensor tripping and terminate the loading sequence.

J. Once all loaders are calibrated and running, be sure to double check that each unit shuts down when the receiving hopper is full. This condition is indicated by the "Demand" light on the control turning off. In this condition, the rise of the material in the receiving hopper blocks the free swing of the discharge valve back to a closed (Demand) position.

The discharge valves on your loaders are designed to work with a wide range of materials, with widely varying densities and flow characteristics. The trip weight of the valves, therefore, may be adjusted to optimize performance with your materials. Easy access to the discharge valve may be gained by removing the circular shroud that protects it. A cotter pin holds the clamping screws in place, and it must be removed. The adjustment is accomplished by loosening the counter weight clamping screws and pivoting the bottom portion of the weights toward the discharge valve for lighter materials; or away from the valve for heavier materials. (See Figure 7). It may be necessary to move the clamping screws to the adjacent set of holes. Retighten the clamping screws, reinstall the cotter pin, and retest the loader. The discharge valve should seal against the rubber ring to within $\frac{1}{16}$", around the entire circumference of the dump port. If it does not, adjustment of the rubber seal may be necessary.

DUMP VALVE SEAL ADJUSTMENT

The rubber seal on the dump valve assembly provides an airtight vacuum seal for the hopper as the loading cycle takes place. It is important that it remains in the proper position to provide adequate sealing.

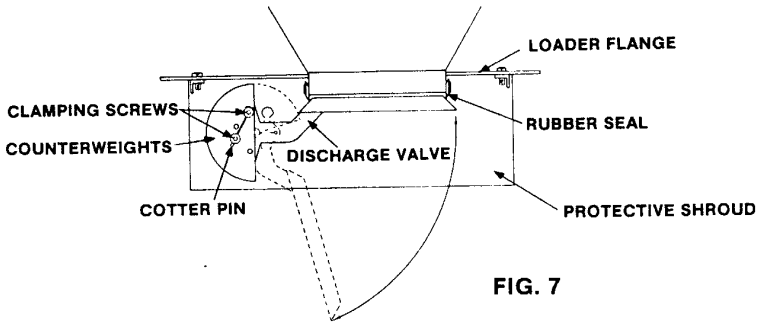

FIG. 7

Assure that the seal protrudes from the base of the loading hopper by 3/16", but no more than ¼". It should be positioned evenly around the entire circumference, with the "knife edge" of the seal positioned inward, to provide a thin, flexible edge for the dump valve to close against. The band clamp that holds the seal in position should be lined up with the bottom of the discharge port and tightened enough to hold the seal in place during operation, but not allowed to distort the seal with over-tightening. Distortion will cause the seal to protrude excessively in certain areas, causing irregular sealing.

After adjusting the dump valve seal, test the dump valve operation by hand to confirm even sealing around the entire dump valve closure. In operation, the valve should spring closed at the conclusion of the dumping cycle and the "Demand" light should come on.

CAUTION: Be sure to tighten and secure all lower flange components to prevent loss due to vibration.

LOADER MICROPROCESSOR BOARD

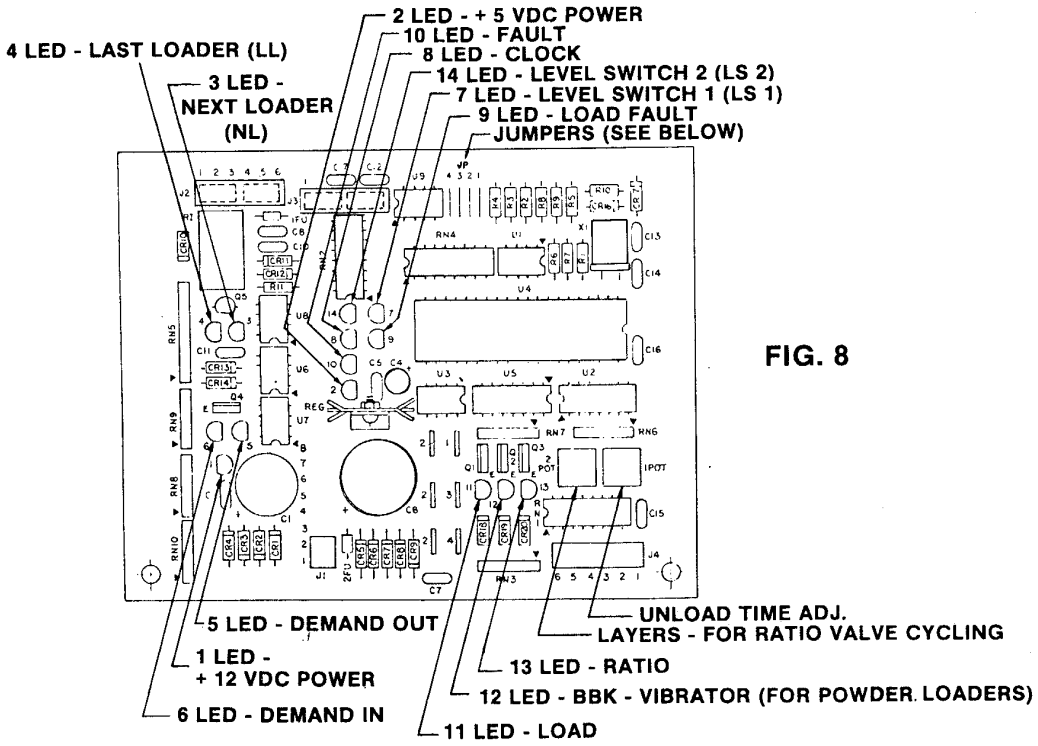

FIG. 8

PRINTED CIRCUIT BOARD JUMPERS

1. JUMPER #1
   INSTALLED — Selects integral motor type loader
   REMOVED — Selects Selectronic 4 type loader
2. JUMPER #2
   INSTALLED — Selects preset times for loading (20 seconds) and unloading (10 seconds)
   REMOVED — Selects external adjustable load and unload times (standard operation)
3. JUMPER #3
   INSTALLED — Selects powder loader/vibrator operation
   REMOVED — Selects integral motor loader with blowback
4. JUMPER #4
   INSTALLED — For normal operation with discharge valve N.C.
   REMOVED — For operation with non-standard, N.O. level switches

SUMMARY OF LED FUNCTIONS ON LOADER MICROPROCESSOR BOARDS

(See Figure 8)

1 LED	+12	Indicator for the +12VDC power supply for selectronic operation. Should be on all the time, if not, replace the control board.
2 LED	+5	Indicator for the +5 VDC power supply for the logic section. Should be on all the time, if not, replace the control board.
3 LED	NL (Next Loader)	Part of selectronic operation. LED goes out when load signal is passed on to the next loader.
4 LED	LL (Last Loader)	Part of selectronic operation. Enables this loader to load. Loader will not load until this light goes out.
5 LED	DO (Demand Out)	Part of selectronic operation. This signal turns the pump on. Should be on whenever this loader calls for material.
6 LED	DI (Demand In)	Part of the selectronic operation. Indicates when any loader in the string is loading. If a particular loader is calling for material, but DI LED and pump do not come on, check fuse 1FU. Also used to reset the load cycle after the last loader is finished loading.
7 LED	LSI (Level Switch 1)	Indicates the loader needs material. Starts the load cycle.
8 LED	CLK (Clock)	Indicates the logic on the control is active. LED should be flashing once every second. If it stops, the control board is defective.
9 LED	Load Fault	Part of the selectronic section. Indicates when a loader has been waiting for ten minutes to load, but hasn't been enabled by the last loader.
10 LED	Fault	Indicates the controller has found a fault on the board. The board should be replaced.
11 LED	Load	Indicates load output of control board. Turns on vacuum valve.
12 LED	BBL (Blowback)	This signal turns on a relay that operates the blowback solenoid for integral motor loaders, for the powder loaders, this output controls the vibrator.
13 LED	Ratio	This signal turns on the ratio output relay.
14 LED	LS2 (Level Switch 2)	On Powder Loaders only, this input, from the high level sensor, terminates the load cycle.

SELECTRONIC 4 TROUBLE SHOOTING

Before troubleshooting, refer to the installation and operation sections of this manual, and Figure 8, to insure that set-up is correct.

SYMPTOM	PROBABLE CAUSE	CURE
Loader will not cycle	No 110 VAC power to control	Apply power
	Circuit breaker switch on loader is off. (Light should be on)	Turn breaker switch on
	Short circuit has tripped the circuit breaker switch	Find and repair the short circuit
	Level switch not calling for material; 7 LED, LSI (Demand) light off 1. Material tripping level switch 2. Switch malfunction	 Normal condition Repair or replace switch
	Pump fuse blown	Investigate/replace
	Load sensor tripped, Gemini only. (14 LED LS2 on)	1. Insure sensor is clear of material or other obstructions 2. Adjust or replace sensor as necessary
	Incorrect jumpers on control board (refer to summary of jumpers)	Install or remove jumpers, as necessry
	Selectronic plant wiring defective) refer to summary of LED functions)	Correct wiring problems
	Control board defective (Refer to summary of LED functions)	Replace control board
	Solenoid malfunction on loader or dustcollector	Repair wiring or replace solenoid as necessary

SYMPTOM	PROBABLE CAUSE	CURE
Ratio valve malfunction	Ratio valve solenoid malfunction	Repair wiring or replace solenoid, as necesary
	Air cylinder binding	Install lubricator on air line
	Output relay in controller defective	Replace relay
	Control board defective	Replace control board
	Ratio (regrind) potentiometer defective or improperly connected	Repair wiring, or replace pot., as necessary
Load time adjustment malfunction	Load potentiometer defective or improperly connected	Repair wiring or replace pot. as necessary
	Jumper JPM2 installed (refer to Summary of Jumpers)	Remove jumper
	Load sensor tripped (Gemini only)	Check switch for obstruction or malfunction
	Control board defective	Replace control board
Large amount of dust carry-over in dust collector (Gemini Loader)	Inoperative or misadjusted hopper sensor-does not properly terminate load sequence	Recalibrate sensor to detect rise of powder in vacuum hopper or replace
Loader cycles properly, low or no material flow	Dirty filter on loader, dust collector, or pump (indicated by high reading on gage at vacuum pump)	Clean filter(s)
	Incorrect setting at distribution box or pickup tube	Adjust air-to-material setting on pickup tube or distribution box for best flow
	Leaks in vacuum or material line (indicated by low reading on gage at vacuum pump)	Repair leaks or replace hose as necessary

SYMPTOM	PROBABLE CAUSE	CURE
	Pump inoperative	Check/re-set overloads on pump motor starter Replace vacuum pump Replace vacuum pump motor

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.

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Addendum to Instruction
Manual IMB-020F

Addendum to Selectronic 4
Loading System

Recent changes to Selectronic 4 Loading Systems are not shown in the standard Selectronic 4 Instruction Manual (# IMB-020F).

These changes are:
1. The addition of a “Selectronic Power Supply” to the system wiring.
2. A change in the 3 phase starter for the system’s vacuum pump.
3. The ability to include a “Back-up” vacuum pump in the system wiring.
4. A change in the “loader(s) to pump” wiring.

All of these changes are depicted electrically on print number 107-428-01, included with this addendum. This print replaces the diagrams shown on pages 1 and 4 of the standard manual.

These changes are also detailed on a label inside the “Selectronic Power Supply” control enclosure (part number 107-354-01) shipped with each Selectronic 4 System.

ADDENDUM INSTRUCTIONS FOR CONAIR FRANKLIN CENTRAL VACUUM LOADING SYSTEMS

PREVENTION OF STATIC DISCHARGE INTO CONTROL CIRCUITRY

The control cables that relay critical sequencing information from loader to loader and from the pump control to the rest of the loading system carry low voltages that have been determined to be most efficient for the signal processing required in loading systems.

These signals may be susceptible to electrical interference in certain situations that will confuse proper signal processing or possibly even do damage to the microprocessor circuitry of the control system. This damage may be in the form of a simple fuse blowing on the microprocessor board (usually **not** field serviceable), tripping of the circuit breaker switch on the loader control (requiring a simple resetting of the switch), or damage to a sensitive component of the microprocessor, requiring printed circuit board replacement.

Conair Franklin has designed a resin conveying system for the "typical" user that offers the most operational flexibility at a reasonable cost. The signal function is one of the most critical aspects of this, or any sophisticated system and certain electro-mechanical phenomenons can occur, without warning, that could do damage temporarily or permanently to system components.

To prevent damage in your installation, the following rules should be followed:

1. **Avoid close proximity with high voltage lines.** The EMF (electro-motive force) radiated by high voltage lines can create a random field of magnetism with an undesirable effect on sensitive control circuitry. In instances where it is necessary to place wires in the same area, the wires should be run at right angles to each other.

2. **Do not run cables along material conveying lines.** The action of plastic resin (in any form) rubbing against another surface will create literally tens of thousands of volts of static electricity which, by nature, seeks a ground. Often, that ground will be found *through* the circuitry of a microprocessor controlled device, causing the obvious damage that a voltage spike like that will create. In most cases, it is an acceptable practice to run cables along a vacuum line, since the amount of carry-over resin within that line and the resultant static is minimal. In certain situations, though, even that practice may have damaging results (as described in number three, below). In any case, any metal tubing used within a conveying system should be effectively grounded frequently (normally through the support brackets that hold the tubing in place) and assurances should be made that the ground within the tubing couplers are intact. This will assure that any static that is created by resin flow has frequent opportunities to discharge to ground before reaching any control or cable.

ADDENDUM INSTRUCTIONS FOR CONAIR FRANKLIN CENTRAL VACUUM LOADING SYSTEMS

PREVENTION OF STATIC DISCHARGE INTO CONTROL CIRCUITRY

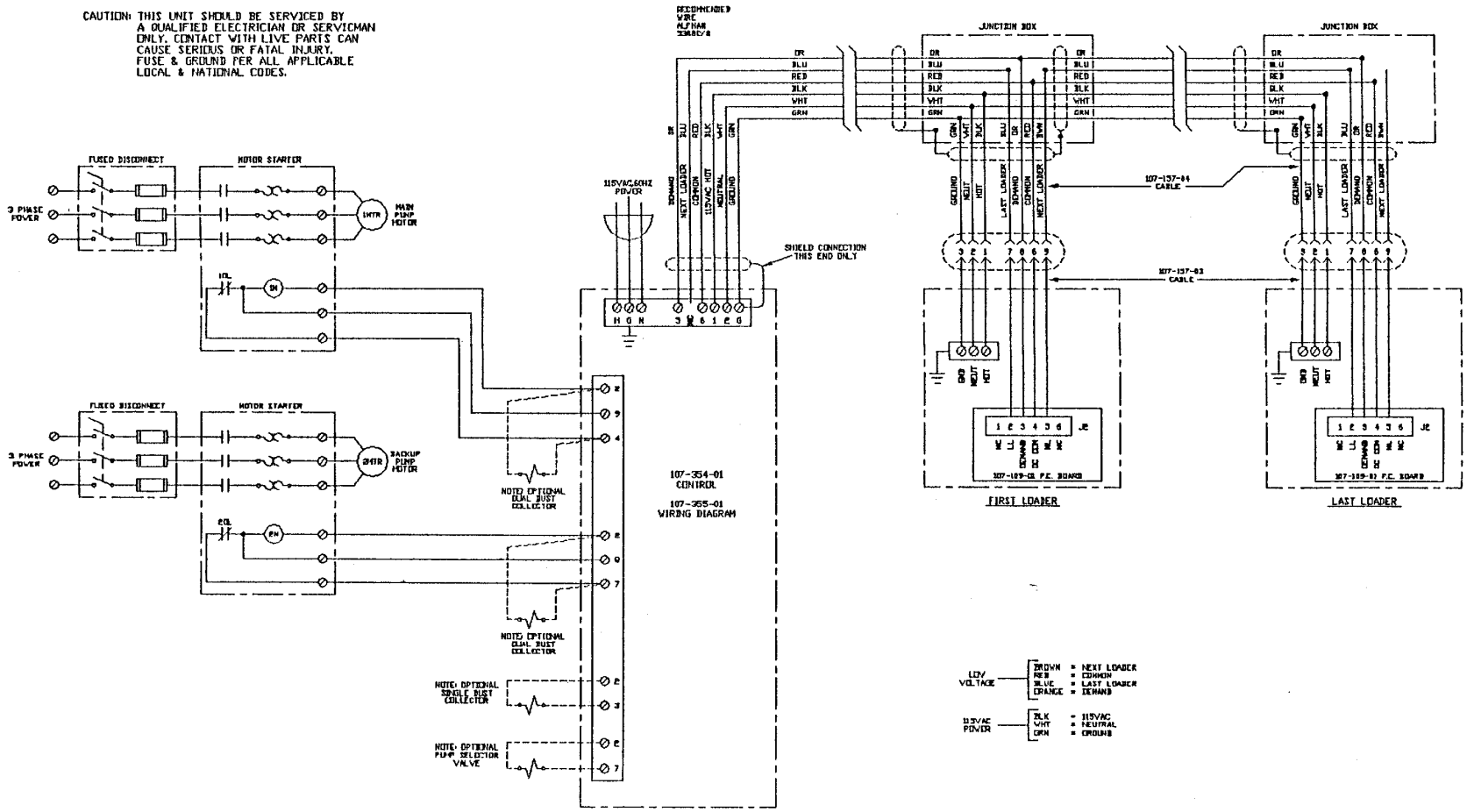
3. **Do not use plastic pipe for vacuum or material conveying.** Plastic pipe acts as a combination static generator and insulator which results in random creation and discharging of static throughout the pipe's entire length. This static, since it is building up in what is essentially an insulator (the plastic pipe) may actually reach dangerous levels since the grounding effect is lost until the level of static is so high that it can actually jump several feet to seek ground neutralization. Plastic pipe must not be used.

   A standard installation practice in plastics conveying is to use flexible hose for connections from rigid metal pipe to the loaders. This hose may have the same effect as the plastic pipe if used in excess of 10 or 15 foot lengths.

   In addition, the use of flexible or rigid plastic tubing creates undesirable conveying since the lack of structural rigidity of the plastic does allow the resin to flow smoothly through the pipe's straight sections. This usually results in unwanted abrasion of the material against the sidewalls of the pipe, creating even more static problems, degrading material and wearing out the pipe.

4. **Use shielded cable.** Conair Franklin recommends as standard, grounded 18-gauge stranded cable for the interconnection of central vacuum conveying systems and in 99% of the installations at work today, it is sufficient against unwanted static. In certain installations however, where the generation of static is particularly acute (especially when accompanied by dry weather conditions that encourage static generation), or avoiding high tension lines that could produce signal distortion EMF is impossible, the use of shielded cable would be recommended as an alternative to standard multi-conductor cable.

CAUTION: THIS UNIT SHOULD BE SERVICED BY A QUALIFIED ELECTRICIAN OR SERVICMAN ONLY. CONTACT WITH LIVE PARTS CAN CAUSE SERIOUS OR FATAL INJURY. FUSE & GROUND PER ALL APPLICABLE LOCAL & NATIONAL CODES.



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CONAIR FRANKLIN
SYSTEMS ENGINEERING GROUP

FRANKLIN
PENNSYLVANIA
16323

SELECTRONIC LOADER
INTERCONNECTION WIRING DIAGRAM

DWN. ERK
DATE 6-24
SCALE:
SHT. 1 of 1

APD
DATE

DWG NO. 107-428-01
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