

Encore[®] iControl[®] Standard Console Hardware Manual

Customer Product Manual

Part 1105821-04

Issued 05/15

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Section 1

Safety

Introduction

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use

Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

All phases of equipment installation must comply with all federal, state, and local codes.

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Safety Data Sheets (SDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material SDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding



WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

All work conducted inside the spray booth or within 1 m (3 ft) of booth openings is considered within a Class II, Division 1 or 2 Hazardous location and must comply with NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

Refer to the *Installation* section of this manual for more information on grounding.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:



- Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the equipment.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Safety Labels

Table 1-1 contains the text of the safety labels on the iControl console. The safety labels are provided to help you operate and maintain your console safely. See Figure 1-1 for the location of the safety labels.

| Item | Part | Description |
|------|---------|--------------------------------------------------------------------------------------------------------------------------------------|
| 1. | 1034161 |  WARNING: Disconnect power before servicing. |
| 2. | 178475 |  WARNING: Hot surface. Do not touch. |

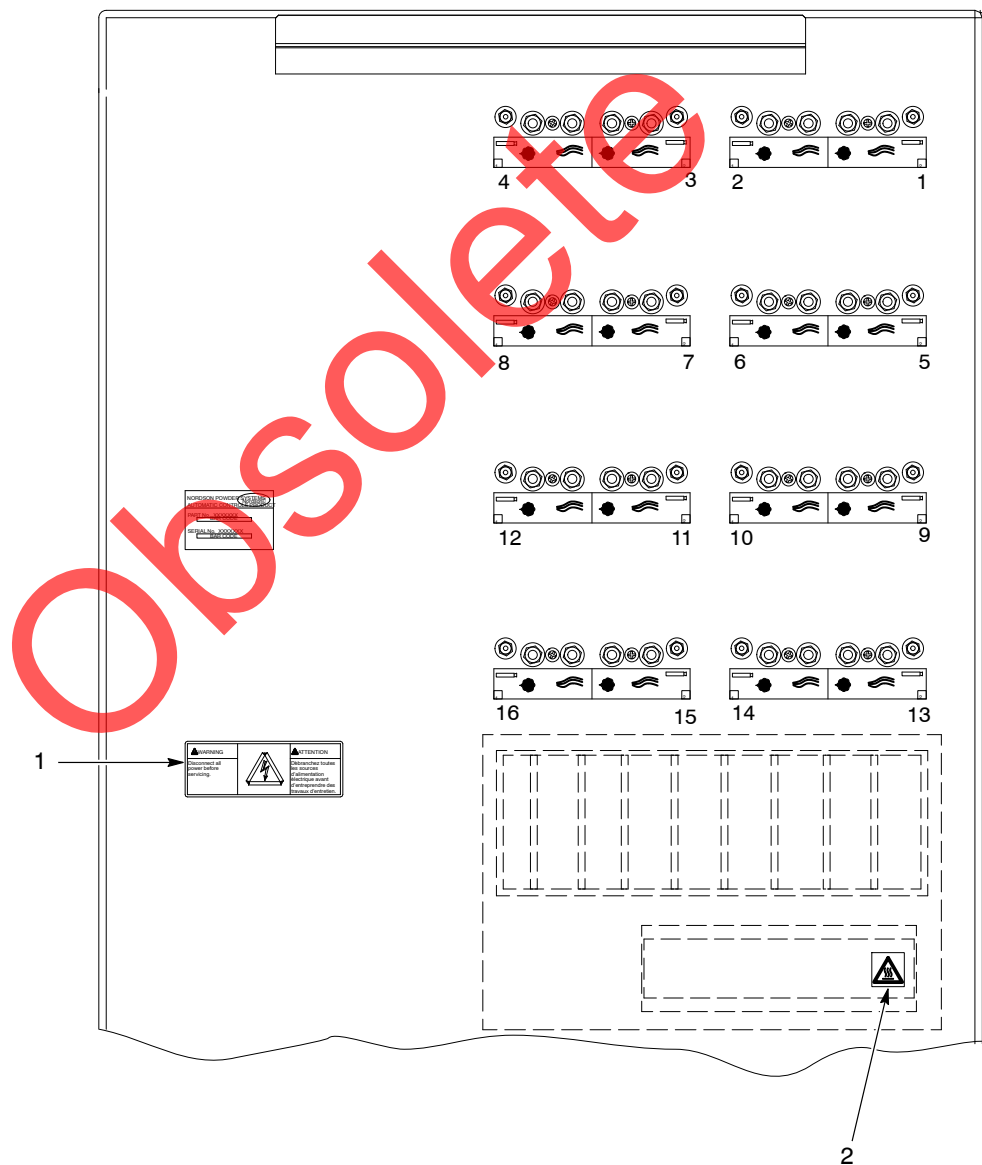


Figure 1-1 Safety Labels

Section 2

Overview

iControl System Manuals

This manual covers the iControl console and system hardware for **Standard Encore iControl** systems used with Encore spray guns only.

iControl manuals are organized as follows:

Operator Interface Manual covers configuration, preset setup, and operation using the iControl software and touch screen:

- 1056418

Operator Card for all versions:

- 1024758

Hardware Manuals, covering installation, troubleshooting, repair, and parts:

- Standard Encore iControl System: 1105821

Standard Encore iControl consoles control up to 16 guns per console.

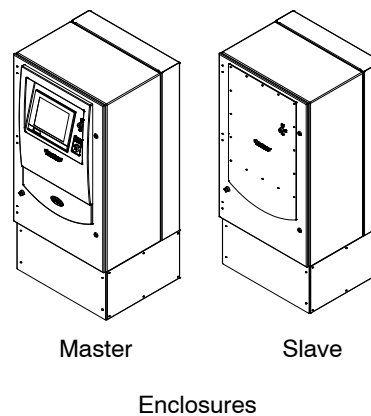


Figure 2-1 iControl Console Styles

Console and System Hardware and Software

See Figures 2-2 and 2-3. A fully equipped master console controlling 16 spray guns contains the following hardware:

- operator interface consisting of LCD touch-screen display, rotary dial, and interlock keyswitch
- single-board computer (PC)
- CompactFlash® adapter and two CompactFlash cards, for program and user data
- I/O board, backplane, card cage, and 8 gun control cards (1 card controls 2 guns)
- power supply
- alarm, remote lockout, and conveyor interlock relays
- 8 iFlow® digital flow modules (1 flow module supplies 2 guns)
- 4 preset precision regulators (one regulator supplies two flow modules)

Slave consoles control 16 guns but do not have an operator interface, SBC, CompactFlash cards, I/O board, or the alarm, lockout, and interlock relays.

The system requires the following external hardware:

- photoeye junction boxes
- zone photoeyes or discrete scanners
- part ID photoeyes or discrete scanners, or inputs from customer part ID system
- conveyor encoder

Options

In/Out Positioners (Horizontal or Vertical)

- analog scanners (to measure part width)
- scanner junction box
- in/out positioners and control panels
- network interface box, Ethernet cables, and Ethernet PCI card

Reciprocators

- analog scanners (to measure part height)
- reciprocators
- in/out positioner/reciprocator control panels

2nd Booth Option

The 2nd booth shares the signals from the conveyor encoder, zone and part ID scanners or photoeyes, and positioner and reciprocator scanners.

- Ethernet switch installed in scanner junction box

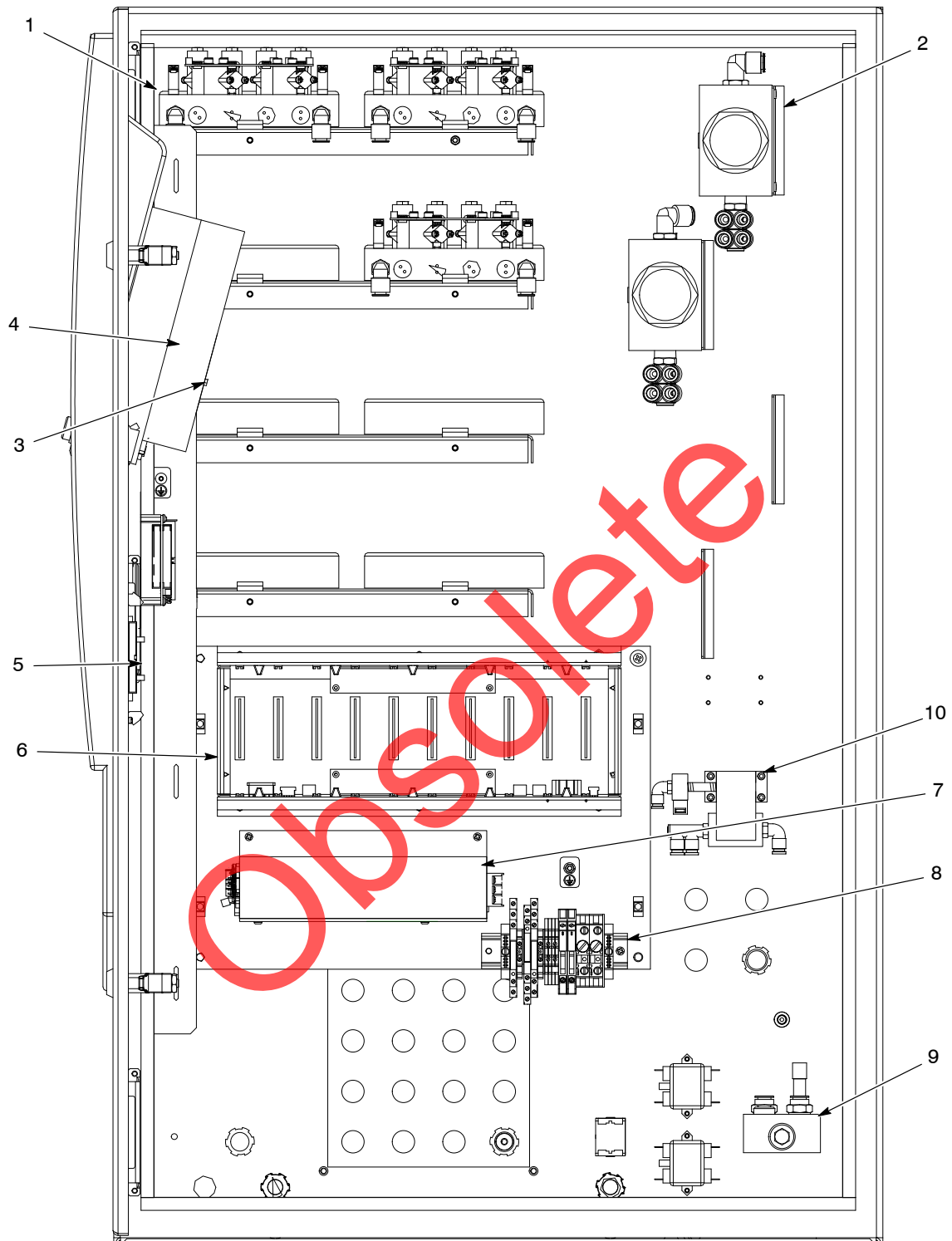


Figure 2-2 iControl Master Console Internal Components (Shown with Door Opened 90°)

- | | | |
|----------------------------------|--------------------------------------------|------------------------------|
| 1. iFlow digital airflow modules | 5. I/O board | 8. Relays and terminal block |
| 2. Regulators | 6. Card cage, backplane, gun control cards | 9. Air manifold |
| 3. CompactFlash cards | 7. Power supply | 10. Purge kits (optional) |
| 4. Computer and LCD display | | |

Operator Interface

The iControl software provides a graphical user interface that provides screens to configure and control the spray gun triggering and positioning system.

The operator performs all configuration and operation tasks with the touch screen and the **Rotary Dial**. Turning the rotary dial increases or decreases values in selected fields.

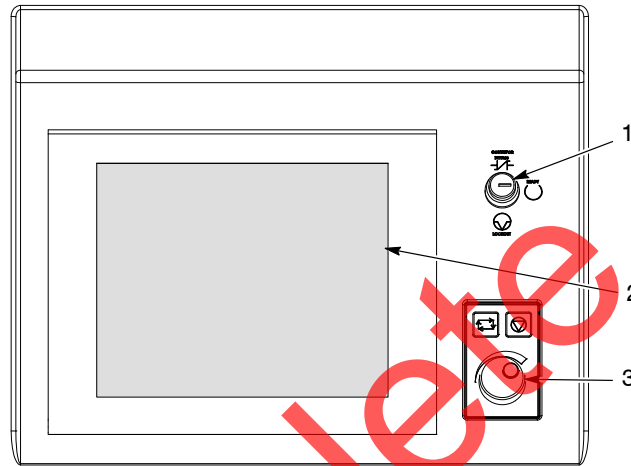


Figure 2-3 Master Console Front Panel

- | | |
|------------------------|----------------|
| 1. Interlock keyswitch | 3. Rotary dial |
| 2. LCD touch screen | |

Interlock Keyswitch Functions

In the **Ready** position, the spray guns cannot be triggered unless the conveyor is running. This prevents powder waste and hazardous operating situations.

In the **Bypass** position, you can trigger the guns on and off without running the conveyor. Use the Bypass position to set up and test spray gun settings.

In the **Lockout** position, the guns cannot be triggered and the in/out positioners and reciprocators cannot be moved. Use this position when working inside the booth. The lockout can be overridden for the in/out positioners and reciprocators from their configuration screens.

CAN and Ethernet Networks

Refer to the system diagrams in Section 7.

CAN Network: Handles communications between the gun control cards, iFlow modules, and the iControl PC, and with other iControl consoles.

Ethernet Network: Handles communications between the iControl system and remote devices such as optional in/out positioners, reciprocators, and scanners.

Digital Inputs

The iControl master console includes an interface board that provides optically isolated digital inputs. Included are

- eight inputs for zone detection
- eight inputs for part identification
- one input for a conveyor motion encoder
- one input for a conveyor interlock
- one input that locks out guns when any booth exhauster is off (only used on multiple booth systems using a single iControl)

The encoder and the devices (photoeyes or scanners) or customer inputs used for zone and part ID detection are connected to a terminal block in the Photoeye Junction Box (PEJB). A 24Vdc power supply in the PEJB provides power for these devices.

A 25-conductor input cable connects the PEJB to the iControl master console. If the master console cannot be located within direct wiring range (19 ft) of the PEJB, an extension box and extra cable is provided. If the system is equipped with a remote I/O (Ethernet) network, then the 25-conductor cable is routed through a network junction box.

Encoder

The iControl system provides one optically isolated digital input for a conveyor motion encoder. The encoder can be either mechanical or optical and must have a 50% duty cycle.

Resolution: At an encoder resolution of one inch to one pulse (1:1), the effective distance parts can be tracked by the iControl system is approximately 1333 feet. At a 2:1 resolution ($1/2$ inch per pulse), the effective tracking distance is halved, to approximately 666 feet.

The maximum speed of the encoder input is 10 Hz (10 pulses per second). This may require a trade off between desired conveyor speed and part tracking resolution (the higher the conveyor speed the coarser the tracking resolution).

NOTE: A timer may be used instead of an encoder. Consult with your Nordson representative.

Gun Control Cards

Each gun control card in the card cage provides electrostatic controls for two powder spray guns. Only Encore automatic powder spray guns are to be used. The cards provide 0–20 VAC (peak) signal to drive the voltage multipliers packaged inside the Encore spray gun. The gun control card also provides process feedback to the operator interface by sending data over the CAN network.

iFlow Digital Flow Modules

The iControl system controls air flow to the spray gun powder pumps, providing a more consistent and steady flow of powder to the spray guns than systems that control air pressure. The flow controls consist of the precision regulators and iFlow digital flow modules mounted in the iControl enclosure.

One regulator supplies air to two iFlow modules. Each module supplies flow-rate and atomizing air to two powder pumps, plus gun air (electrode wash air) to two spray guns. Flow-rate and atomizing air is turned on and off when the spray guns are triggered on and off.

The modules provide closed-loop control of flow-rate and atomizing air flow, constantly sensing the output and adjusting it to maintain air flow at the preset settings. The regulators provide air at a constant pressure to the air flow modules so the closed-loop control can operate at the calibrated range. The regulators are set 5.86 bar (85 psi) at the factory—do not change their settings.

Maximum output per powder pump is 13.6 m³/hr (8 scfm). Each channel (flow or atomizing air) has a maximum output of 6.8 m³/hr (4 scfm).

Two solenoid valves on the modules control the flow of gun air (electrode wash air) to the spray guns. The air flow is regulated by a fixed-orifice restrictor at the output. The solenoids can be set to turn on and off as the guns are triggered or for continuous flow.

Communication between the iFlow modules and the iControl PC is through the CAN network.

Specifications

General

| Air Pressures | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Input | 6.2–7.6 bar (90–110 psi) |
| Supply air hose | $\frac{3}{4}$ in. ID minimum |
| Maximum output per pump | 13.6 m ³ /hr (8 scfm) |
| Maximum output per channel | 6.8 m ³ /hr (4 scfm) (flow-rate, atomizing) |
| Gun air (electrode wash) | 0.36 m ³ /hr (0.2 scfm) |
| Electrical Requirements | |
| Input | Unswitched: (PC) 100–230 Vac, 50/60 Hz, 1 \emptyset , 120 VA max. |
| | Switched: 100–230 Vac, 50–60 Hz, 1 \emptyset , 520VA max. |
| | Conveyor Interlock, Remote Lockout: 120/230 Vac, 50/60 Hz, 1 \emptyset , 6 mA |
| | Alarm Relay contact rating: 120/230 Vac, 1 \emptyset , 6 A |
| Output (to spray gun) | $\pm 19V$, $\pm 1A$ (peak) |
| NOTE: The iControl system must be interlocked with the fire detection system so that the spray guns are shut off if a fire is detected inside the spray booth. | |
| ANSI/ISA S82.02.01 | |
| Pollution Degree | 2 |
| Installation (Overvoltage) | Category II |
| Environmental | |
| Operating Temperature | +15°C to +40°C |
| Operating Humidity | 5–95%, non-condensing |
| Hazardous Location Rating (See Note) | North America: Class II Division 2, Groups F & G |
| Note: Also see <i>Special Conditions</i> on page 2-8 for safe use. | |

Air Quality

Air must be clean and dry. Use a regenerative desiccant or refrigerated air dryer capable of producing a 3.4 °C (38 °F) or lower dew point at 7 bar (100 psi) and a filter system with prefilters and coalescent type filters capable of removing oil, water and dirt in the submicron range.

| | |
|-------------------------------------|-----------------------------|
| Recommended Air Filter Screen Size: | 5 micron or smaller |
| Maximum Oil Vapor in Air Supply: | 0.1 ppm |
| Maximum Water Vapor in Air Supply: | 0.48 grains/ft ³ |

Moist or contaminated air can cause the iFlow modules to malfunction; the powder to cake in the feed hopper, or clog the pump venturi throats, feed hoses, and spray gun powder paths; and cause grounding or arcing inside the spray gun.

Special Conditions for Safe Use

The Encore Automatic Powder Spray Applicators shall only be used with the associated Encore iControl integrated controllers over the ambient temperature range of + 15 °C to + 40 °C.

The Encore iControl units with the air conditioning option are not certified for hazardous locations or zones. When this option is used the controller must be located out of the hazardous area or zone.

Caution should be taken when cleaning plastic surfaces of the iControl. There is a potential for static electricity build up on these components.

Approvals

FM Approved for US and Canada.

Approved Program and User Data Cards

CompactFlash card capacity: 512 Mb minimum – Type I CompactFlash only.

NOTE: *Retail* CompactFlash refers to devices available at camera, computer, and electronic retail shops. Retail flash has a rating of 30,000 to 600,000 write cycles at a maximum of 75°C (167°F) and may experience a shorter overall life.

Industrial CompactFlash refers to rated devices only available through an electronics parts supplier and online sources that sell CompactFlash with an industrial temperature rating for use in Embedded Systems. Industrial flash has a rating of 2,000,000 write cycles and an increased temperature range to 85°C (185°F).

Devices that have been validated:

- SanDisk – retail to 2 GB, industrial to 1 GB
- Toshiba – retail to 2 GB
- PNY – retail to 2 GB
- Dane-Elec – retail 512 MB
- Kingston Technology – retail to 4 GB
- Smart Modular Technologies – industrial to 1 GB
- SMC Numonyx – industrial to 1 GB
- Silicon Systems – industrial 512 MB
- Transcend – industrial 512 MB
- SanDisk – industrial 4 GB and larger (must be used in pairs)

NOTE: With the industrial Sandisk, the system will not boot completely or in a timely manner when either the data or program flash differs in size.

Incompatible devices with iControl:

- LEXAR – any
- Type II – any (Type II CompactFlash are larger and will not fit into the device holder.

Section 3

Installation



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.



WARNING: This equipment can be dangerous unless it is used in accordance with the rules laid down in this manual.

Introduction

iControl systems are configured for each customer's application and requirements. The equipment supplied with the system varies depending on the type of installation (new, upgrade, or retrofit) and the equipment furnished by the customer. Therefore, this section provides only basic installation information. Detailed information is contained in the system wiring diagrams, plan views, and other documentation furnished by Nordson application engineering.

Refer to Section 7 for system diagrams and console, junction box, and control panel drawings.

Once all hardware is installed and wired and the system is powered up, the operator interface is used to configure, setup, and operate the system. Refer to the *iControl Operator Interface* manual for configuration instructions.



WARNING: Use dust-tight conduit connectors or strain reliefs in all iControl console, junction box, and control panel knockouts. Installation must be done according to code and care must be taken to maintain the dust-tight integrity of the enclosures.

CAN Network Connections

Master and slave iControl consoles communicate through a CAN network. See Figure 3-1 for connections.

The CAN cable is installed in a separate conduit. Route the conduit to the slave console and connect the cable as shown.

Make sure all console and flow module address and termination switch settings are as described in *Console Address and Termination Settings* and *iFlow Module Address Settings* in this section.

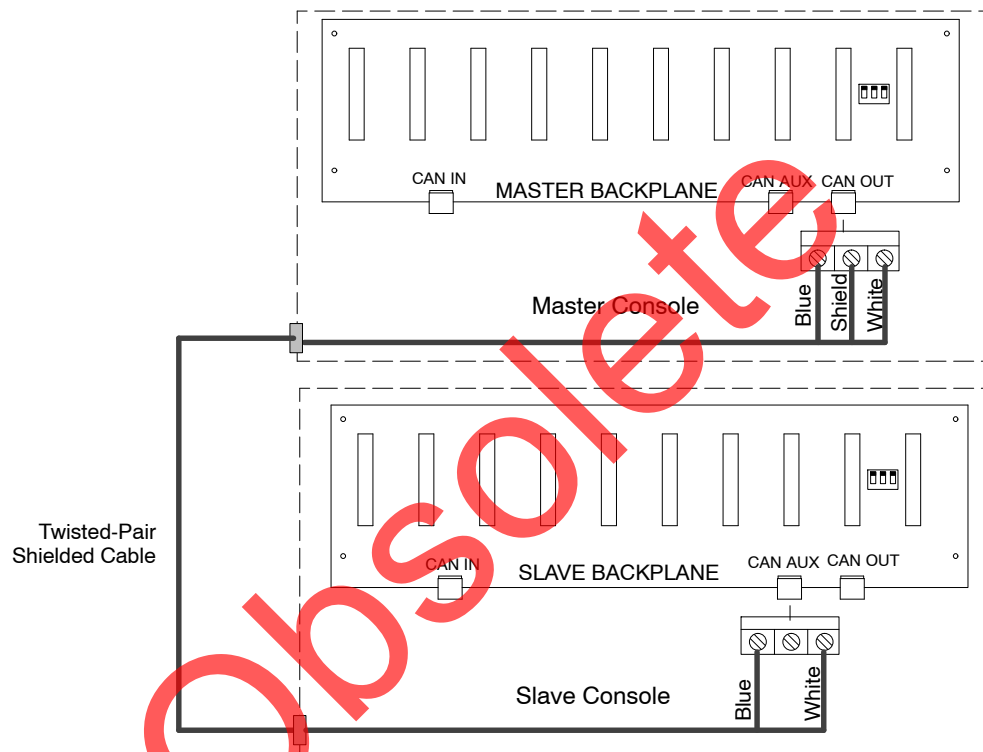


Figure 3-1 CAN Network Cable Connections

Console CAN Network Address and Termination Settings

See Figure 3-2.

The CAN network terminator dipswitch and console address dipswitches on the backplane must be set properly.

Network terminator dipswitch:

- Master console only: Set the network terminator to END (SW1-3 closed)
- Master and slave console: Set the master console to CONTINUOUS (SW1-3 open) and the slave console to END (SW1-3 closed).

Network address dipswitch:

- Set the master console to 1 (SW1-1 closed, SW1-2 closed).
- Set the slave console to 2 (SW1-1 closed, SW1-2 open).

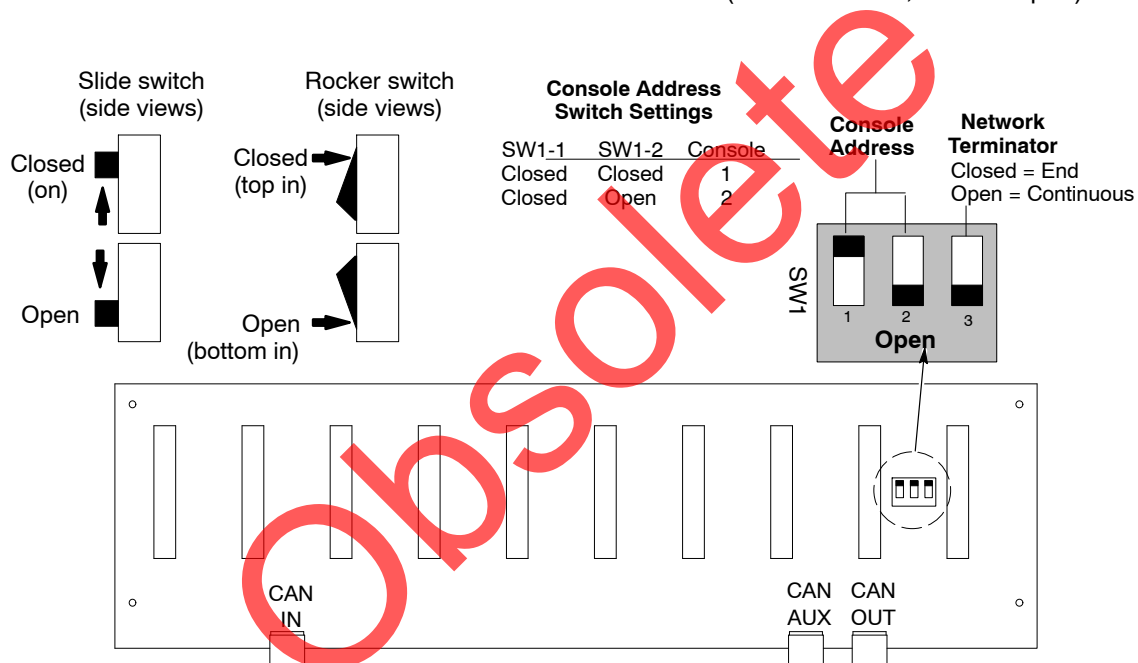


Figure 3-2 CAN Network Connections, Console Addresses, and Termination

iFlow Module Dipswitch Settings

The dipswitches on the iFlow digital flow modules set:

- gun air flow triggering
- console address
- module address

Each iFlow module must have a unique network address. The system will not be able to operate flow modules with duplicate addresses, and will notify the operator if it detects two modules with the same address.

The module address consists of the console number (1 or 2) and the number of the module (1–8) within the console.

See Figure 3-3 and Table 3-1.

Electrode Air Wash Control (SW4–1, 2)

Set switches 1 and 2 to Continuous (down) air flow or to Triggered (up) air flow.

SW4–1 corresponds to the gun of Channel 1 and SW4–2 corresponds to the gun of Channel 2 of the iFlow module.

Console Address (SW4–3, 4): Set switches 3 and 4 to the console address, which is the same as the address set at the backplane dipswitch shown in Figure 3-2.

Module Number (SW3): Set the rotary dipswitch on each module to the correct module number. The modules are numbered as shown in the module arrangement chart in Figure 3-3.

Table 3-1 Flow Module SW4 Dipswitch Settings

| Gun Air | | | Console Address | | |
|------------------|------------------|------------|-----------------|-------|------------|
| SW4–1 (Gun A) | SW4–2 (Gun B) | Air Flow | SW4–3 | SW4–4 | Console |
| Down | Down | Continuous | Up | Up | 1 (master) |
| Up | Up | Trigger | Up | Down | 2 (slave) |

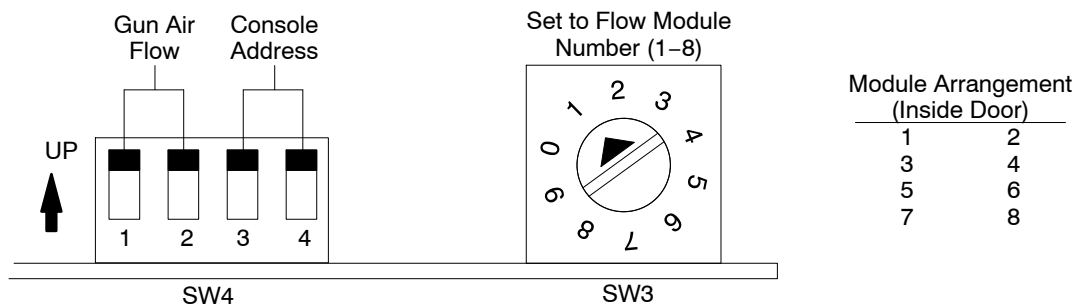


Figure 3-3 iFlow Module Address

Power, Ground, and Relay Connections

The console and junction box power cable ground wires must always be connected to a true earth ground. The special flat braided ESD ground cables provided with the iControl consoles and manual gun controllers must be used to connect them to the booth base if possible. Refer to *Grounding* on page 3-8 for more information.



WARNING: Consoles and all conductive equipment in the spray area MUST be connected to a true earth ground. Use the provided ground cables to ground the consoles. Mount the junction boxes and control panels to grounded stands or the booth base. Failure to observe this caution could result in severe shocks to personnel, fire, or explosion.

Table 3-2 lists the connections required for console power, chassis ground, remote lockout, alarm contacts, and conveyor interlock. Refer to page 3-12 for optional junction box and control panel power requirements.

Refer to Section 7 for the system diagram, console wiring diagrams, and junction box and control panel drawings. Refer to your system electrical drawings for all other power and ground connections.

iControl Console Power Cable Connections

Table 3-2 Master and Slave Console Power Cable Connections

| Master Console Power Cable Connections (A) | | |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Wire Color | Connection | Function |
| Black | L1 (hot) | 100–240 Vac power to SBC (master console only) (unswitched) |
| White | L2 (neutral) | |
| Brown | L1 (hot) | 120–240 Vac power to console power supply (master and slave consoles) (switched with booth exhaust fan motor) |
| Blue | L2 (neutral) | |
| Green/Yellow | Chassis Ground (master and slave consoles) | |
| Gray (2) | Remote Lockout: 240 Vac, 1 phase, 6 mA (for 120 Vac, refer to instructions below) | |
| Yellow (2) | Alarm contacts: 120/230 Vac, 1 phase, 6 A max. Closed with no power to console or alarm is present. Open with power applied to console and no alarms present. | |
| Red, Orange | Conveyor Interlock: 240 Vac, 1 phase, 6 mA (for 120 Vac, refer to instructions below) | |
| Slave Console Power Cable Connections (B) | | |
| Wire Color | Connection | |
| Blue | L1 | |
| Brown | L2 | |
| Green/Yellow | GND | |

Conveyor Interlock and Remote Lockout Relay Connections

Figure 3-4 shows the standard wiring of the conveyor interlock and remote lockout relays in the console, which are wired for 240 volts. The 120V Connections are also shown in Figure 3-4 if switching to 120V is needed. Do not remove the 20K resistors.

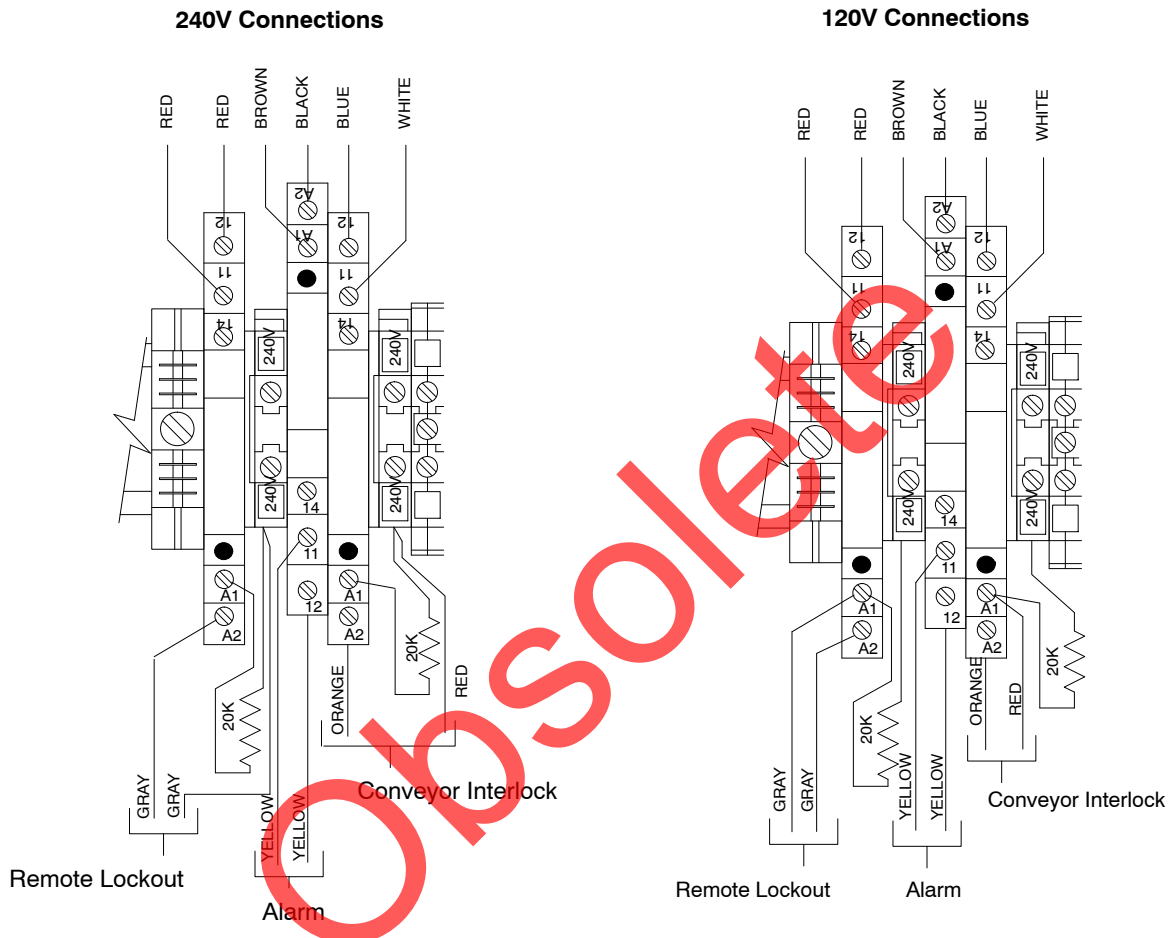


Figure 3-4 240Vac and 120Vac Conveyor Interlock and Remote Lockout Connections

Power Supply Connections

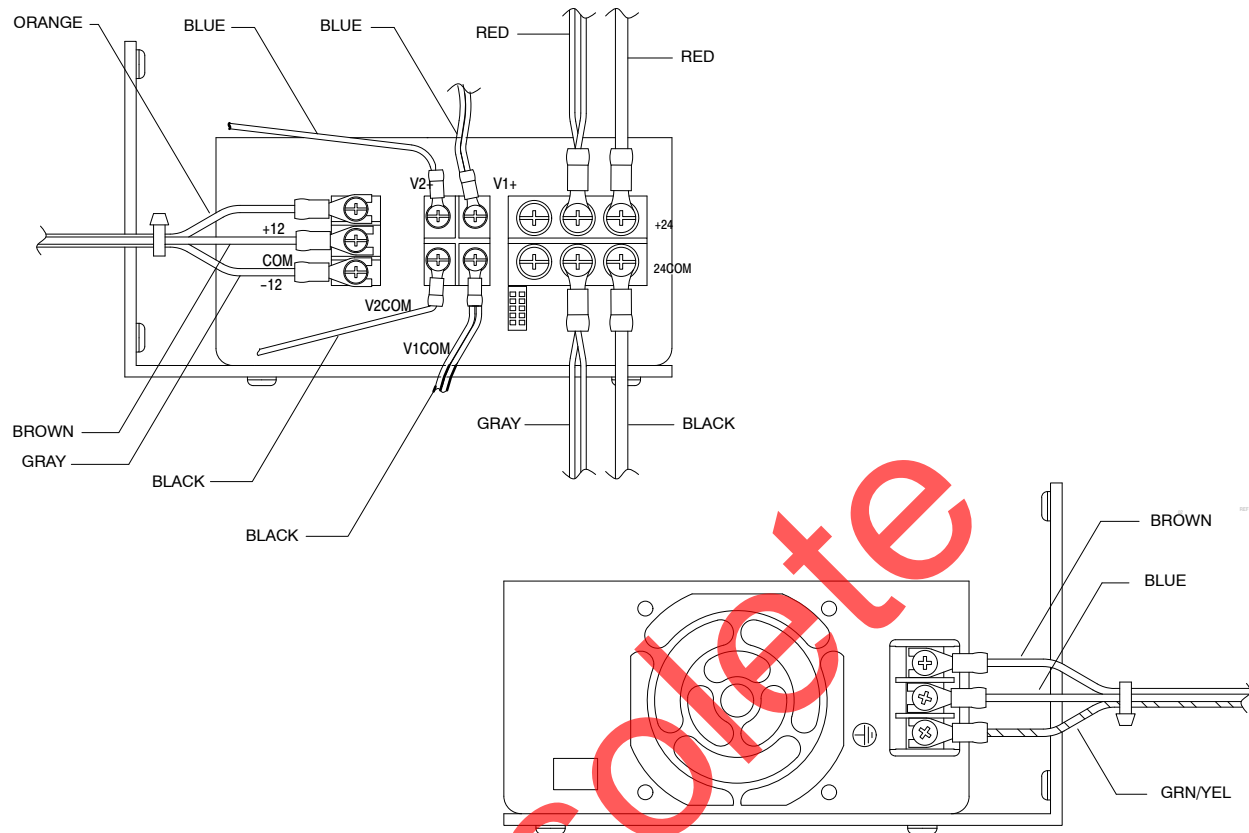


Figure 3-5 Power Supply Connections

Grounding

Proper grounding of all conductive components of a powder coating system provides both shock and electrostatic discharge protection for both operators and sensitive electronic equipment. Many system components (booth, collector, color modules, control consoles, and conveyor) are connected both physically and electrically. It is important that the proper grounding methods and equipment are used when installing and operating the system.

PE (Protective Earth) Grounding

PE grounding is required on all conductive metal electrical enclosures in a system. PE grounding is provided by a ground conductor wire bonded to a true earth ground. PE grounding protects operators from electrical shock by providing a path to ground for electrical current if a conductor contacts an electrical enclosure or other conductive component. The ground conductor wire carries the electrical current directly to ground and short circuits the input voltage until a fuse or circuit breaker interrupts the circuit.

The green/yellow ground wires bundled with the AC input power cable are used only for PE grounding and their sole purpose is to protect personnel from a shock. These ground wires do not protect equipment against electrostatic discharge.

Electrostatic Grounding

Electrostatic grounding protects electronic equipment from damage caused by electrostatic discharges (ESD). Some electronic components are so sensitive to ESD that a person can deliver a damaging static discharge without feeling even a mild shock.

Proper electrostatic grounding is mandatory in an electrostatic powder coating system. Powder spray guns generate electrostatic voltages up to 100,000 volts. It does not take long for ungrounded system components to build up an electrical charge strong enough to damage sensitive electronic components when discharged.

Electrostatic discharges occur at very high frequencies, around 100 megahertz. An ordinary ground conductor does not conduct such high frequencies well enough to prevent damage to electronic components. Special flat braided cables are provided with your Nordson powder coating equipment to protect against ESD.

Gun Current Path

Refer to Figure 3-6. All electrical circuits need a complete path for current to make its way back to the source. Electrostatic spray guns emit current (ions) and therefore require a complete circuit. Some of the current emitted by the spray gun is attracted to the spray booth, but most is attracted to the grounded parts moving through the booth. The current attracted to the parts flows through the part hangers to the conveyor and to the building ground, back to the controller through a ground braid and back to the spray gun through the gun driver board. The current attracted to the booth is returned through the booth ground to the controller and back to the gun.

It is very important to provide a complete circuit for the gun current. A break in the circuit conductors (conveyor, booth, braided ground cables, controller) can cause voltage to build up on the conductors up to the maximum output of the spray gun voltage multiplier (up to 100 kV). The voltage will eventually discharge in a high frequency arc, which can cause damage to the controller electronics (gun driver board and power supply).

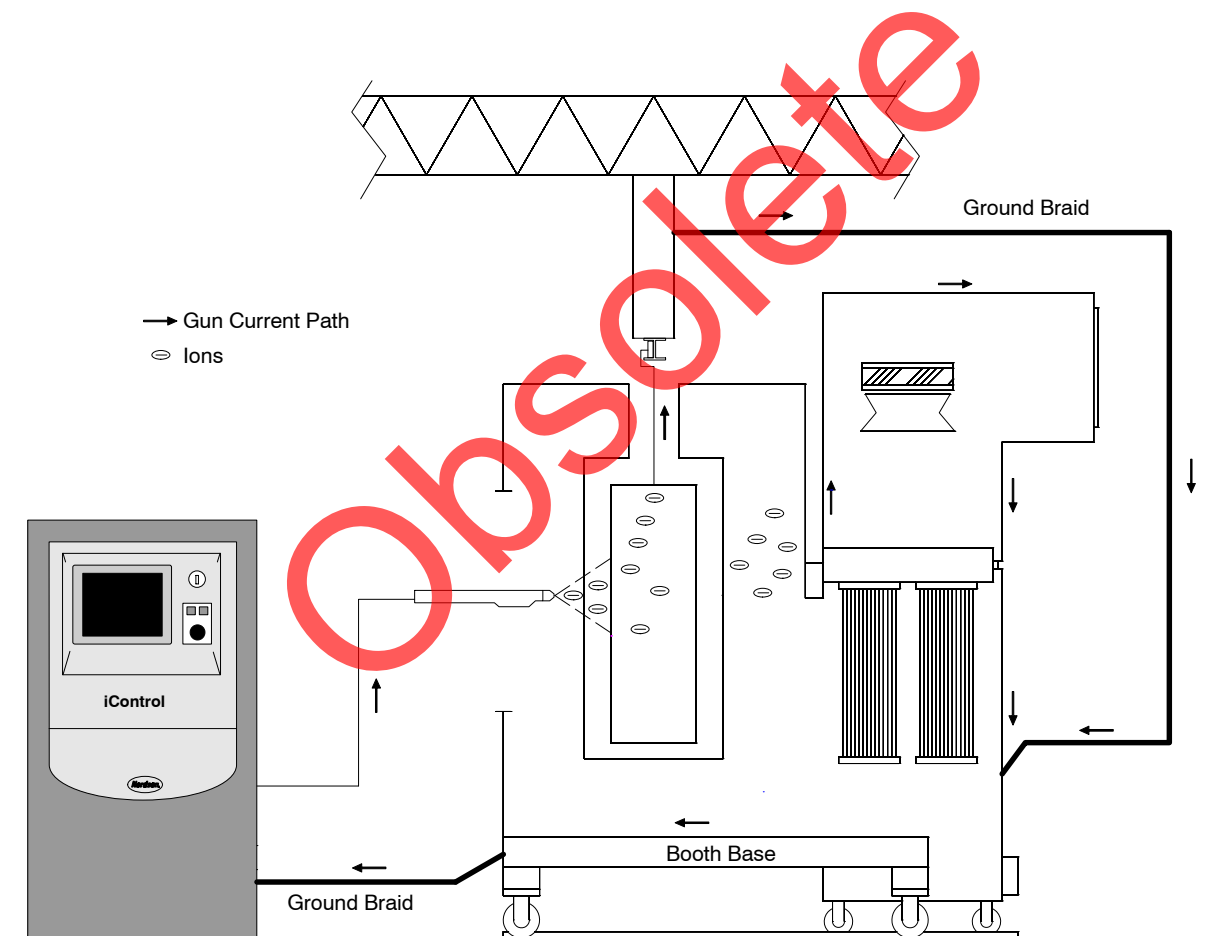


Figure 3-6 Electrostatic Current Path

ESD Ground Procedures and Equipment

The best protection against ESD is to keep the ground braids as short as possible and connect them to a central point on the booth base as shown in the Star diagram. Under normal conditions making Star connections is not a problem, but in some systems, such as roll-on/roll-off booths, the ground braids required for a Star connection are too long to be effective against ESD. In this case, a Daisy Chain ground configuration is acceptable.

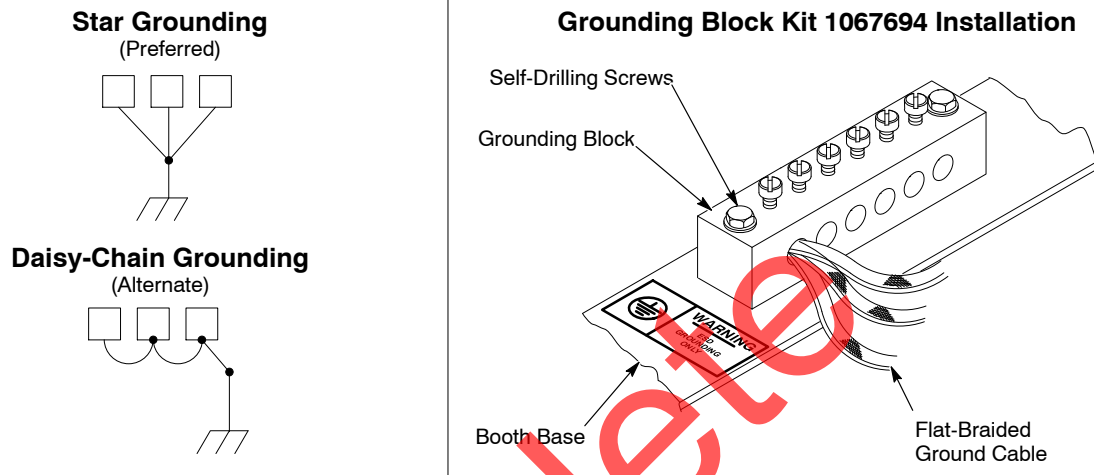


Figure 3-7 ESD Grounding Procedures and Equipment

Always use the special flat braided copper ESD ground cables furnished with all Nordson spray gun controllers to ground them. The ESD ground cables should always be attached to the welded booth base, not to a panel, enclosure, or other component bolted to the base. Keep the cables as short as possible. If using a grounding block kit, make sure the block is installed directly to the welded base with the included self-drilling screws.

An ESD grounding block kit is available for connecting the ground braids to the booth base. The kit contains two 6-position grounding blocks, fasteners, terminals, and 15 meters (50 feet) of braided ground cable. If additional kits are required, order:

1067694 Kit, ground bus bar, ESD, 6-position, with hardware

Encoder, Photoeye, and Scanner Connections

A 25-conductor cable carries the encoder and discrete part ID and zone input signals from the Photoeye Junction Box (PEJB) to the I/O board in the iControl console. If these inputs are shared by a second booth then an additional 25-conductor cable is supplied. Table 3-3 lists the 25-conductor cable connections to be made at the terminal strip.

Section 7 contains a system wiring diagram, console wiring diagram, and diagrams for the junction boxes and control panels listed in Table 3-3.

NOTE: Refer to your system plan views when locating the part ID stand and mounting the photoeyes or scanners.

25-Conductor Cable Connections

Table 3-3 Parallel Cable Connections: I/O Board to Junction Box Terminals
(Inputs to I/O Board are Sinking)

| Wire Color | I/O Board Terminal | Junction Box Terminal Number | Function |
|------------------------|--------------------|------------------------------|----------------------------|
| BLK | 8 LO | 1 | Zone 1 |
| WHT | 9 LO | 2 | Zone 2 |
| GRN | 10 LO | 3 | Zone 3 |
| ORG | 11 LO | 4 | Zone 4 |
| BLU | 12 LO | 5 | Zone 5 |
| WHT/BLK | 13 LO | 6 | Zone 6 |
| RED/BLK | 14 LO | 7 | Zone 7 |
| GRN/BLK | 15 LO | 8 | Zone 8 |
| ORG/BLK | 20 LO | 9 | Part ID bit 1 |
| BLU/BLK | 21 LO | 10 | Part ID bit 2 |
| BLK/WHT | 22 LO | 11 | Part ID bit 3 |
| RED/WHT | 23 LO | 12 | Part ID bit 4 |
| GRN/WHT | 0 LO | 13 | Part ID bit 5 |
| BLU/WHT | 1 LO | 14 | Part ID bit 6 |
| BLK/RED | 2 LO | 15 | Part ID bit 7 |
| WHT/RED | 3 LO | 16 | Part ID bit 8 |
| ORG/RED | 4 LO | — | Trigger Bank 0 |
| BLU/RED | 5 LO | — | Trigger Bank 1 |
| RED/GRN | 6 LO | — | Trigger Bank Select Enable |
| ORG/GRN | 7 LO | 20 | Encoder A |
| BLK/WHT/RED | 16 LO | — | spare |
| WHT/BLK/RED | 17 LO | — | spare |
| RED/BLK/WHT | 18 LO | — | Manual Lockout |
| GRN/BLK/WHT | N/C | — | — |
| BLUE from Front Panel | 19 HI | Not Applicable | Conveyor Interlock |
| WHITE from Front Panel | 19 LO | Not Applicable | Conveyor Interlock |
| RED | 8 HI | (+) | VDC |

NOTE: For information on how to use Trigger Banks, see *Using Zone Inputs for Direct Triggering* in the iControl Software Manual.

Switching Inputs to Sourcing

Inputs to I/O card in the iControl console are configured as sinking. 24 Vdc is applied to all HI terminals. To switch the inputs to sourcing:

1. Disconnect all wires from the I/O card LO terminals, except terminal 24. Do not remove the blue and white wires from terminals 24 HI and 24 LO.
2. Move the 6-pole jumpers from the HI terminals to the LO terminals.
3. Install the red wire jumpers to connect all 6-pole jumpers together.
4. Connect the red wire from the 25-conductor cable to terminal 1 LO.
5. Connect the remaining wires to the HI terminals.
6. At the PEJB, connect the red wire to the (–) terminal.

Conveyor Encoder Connections

Bring the encoder cable into the Photoeye Junction Box (PEJB) through a dust-tight conduit at one of the unused knockouts in the PEJB. Wire the cable to the encoder and PEJB terminal strip as shown on the PEJB drawing in Section 7.

Photoeye Connections

Connect SO cable to the photoeyes and photoeye junction box terminal block as shown on the PEJB drawing. Route the cables through the cord grips installed in the PEJB as shown.

Configure the photoeyes and set their sensitivity as shown on the PEJB drawing.

Junction Box and Control Panel Power Requirements

Table 3-4 Junction Box/Control Panel Power Requirements

| J-Box/Control Panel | Requirement |
|-----------------------------------------------|---------------------------------------------------------------------------|
| Photoeye (standard) (PEJB) | 120–240 Vac, 1 PH, 50/60 Hz, 2A |
| Network Interface | 120 Vac, 1 PH, 60 Hz, 11 watts |
| In/Out Positioner Scanner | 24 Vdc from 30 Watt PEJB |
| In/Out or Up/Down Positioner Control DC Motor | 120 Vac, 1 PH, 60 Hz, 10A |
| Analog (Retrofit) In/Out Positioner Control | 120 Vac, 1 PH, 60 Hz, 2A |
| In/Out Positioner / Reciprocator Control | 120 Vac, 1 PH, 60 Hz, 10A 208–575 Vac, 3 PH, 60 Hz (see wire diagrams) |
| Up/Down Positioner Control AC Motor | 120 Vac, 1 PH, 60 Hz, 2A 208–575 Vac, 3 PH, 60 Hz, (see wire diagrams) |

Scanner Cable Connections

See Figure 3-8. The photoeye junction box and scanner junction boxes are shipped with the scanner cables pre-wired to the junction boxes. The scanner controllers are programmed at the factory according to the system order specifications. Refer to your system plan views when locating the part ID stand and scanners or photoeyes. The scanners must be mounted with the cable ends oriented as shown.

Discrete Scanner Connections

- Single Zone Scanner: SCNR1 cables to scanner.
- Dual Zone Scanners: SCNR1 cables to upper scanner, SCNR2 cables to lower scanner.
- Part ID Scanner and Zone Scanner: SCNR1 cables to zone scanner, SCNR2 cables to Part ID scanner.

NOTE: The part ID scanner or photoeyes must be located so that the iControl system receives the part ID before the leading edge of the part breaks the zone scanners or photoeyes.

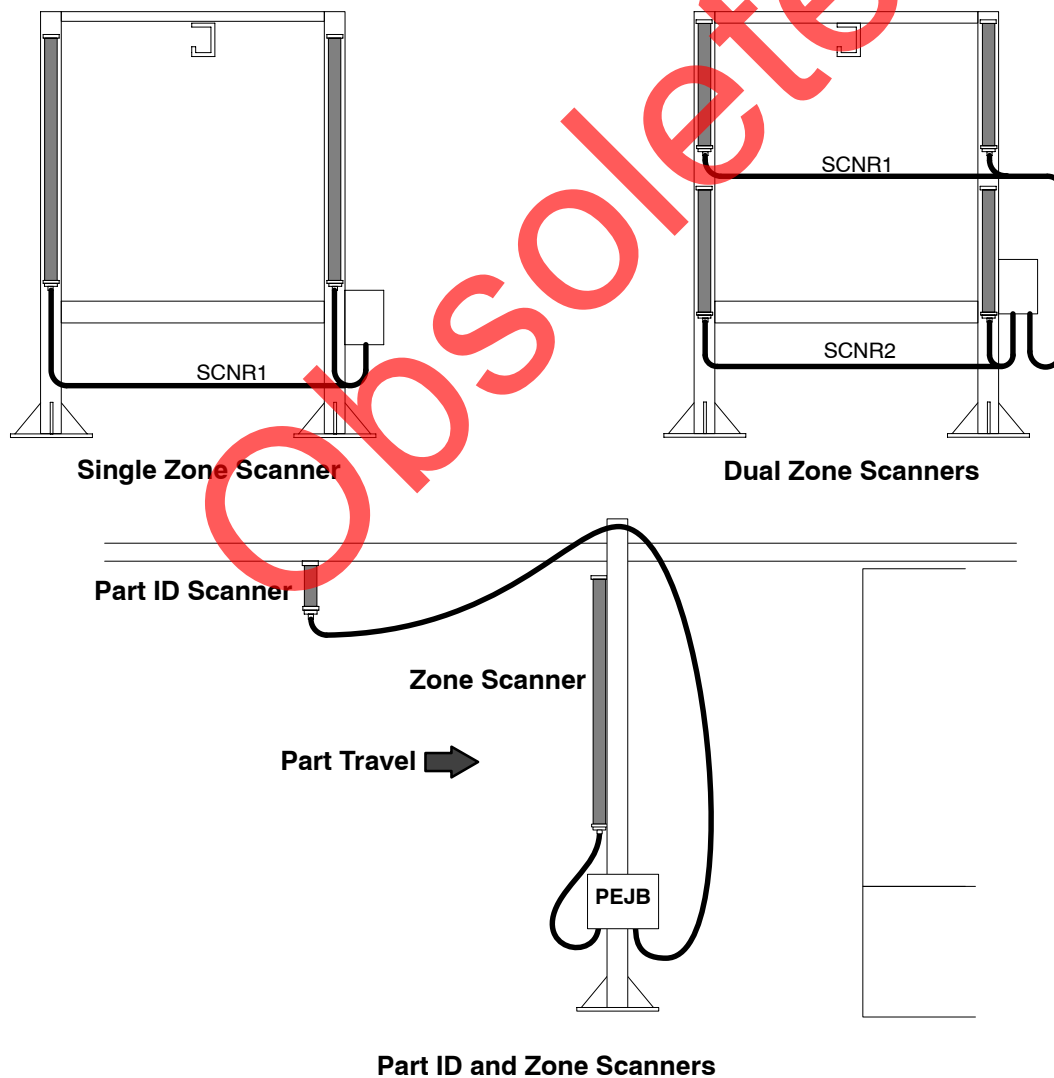


Figure 3-8 Zone and Part ID Scanner Cable Connections (Typical)

Analog Scanner Connections

See Figure 3-9. If the system includes in/out positioners, then one or two analog scanners are mounted horizontally on the stand to detect the part width. The in/out positioner scanner junction box is typically located on the light stand. The scanners must be mounted with the cable ends oriented as shown. If using dual scanners, mount them so that they do not see the conveyor. Connect the scanner cables (BSCE, BSCR) from the junction box to the scanners as shown.

If the system also has reciprocators, then analog scanners are used to detect the part height and top and bottom edges. Mount the scanners with the cable ends down and connect the cables (SCNR1) from the junction box to the scanners.

Maximum Emitter/Receiver Separation:

6 meters (20 ft) if scanner is less than 1.22 meters (4 ft) long

4.6 meters (15 ft) if scanner is greater than 1.22 meters (4 ft) long.

NOTE: If using a single horizontal scanner, the controller must be programmed to ignore the conveyor. This requires software from the scanner manufacturer, a laptop running Windows, and a serial cable to connect the laptop to the scanner controller in the junction box.

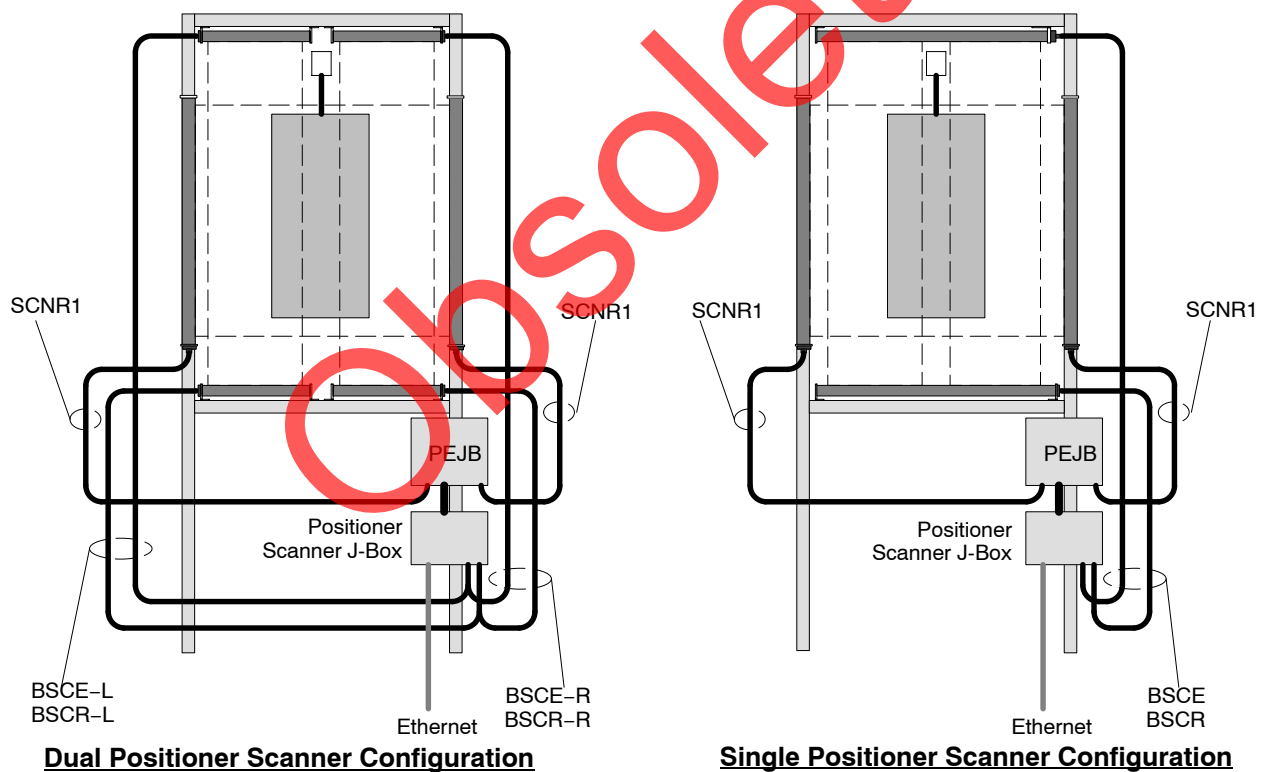


Figure 3-9 System Wiring – In/Out Positioner Scanner Connections

Customer-Supplied Part ID System Connections

Refer to Table 3-3 on page 3-11. Use the Part ID terminals on the Photoeye Junction Box to connect a customer-supplied part ID system to the iControl console. The 8 inputs are used based on the settings made in the Photoeye Configuration screen. Refer to the *iControl Operator Interface* manual for configuration instructions.

Ethernet Network Connections

The Ethernet network allows the iControl system to communicate with remote Ethernet devices such as the in/out positioner or reciprocator controllers and the Ethernet couplers that receive signals from the analog scanner controllers.

NOTE: Do not connect any device to this network that is not approved by Nordson Finishing Technical Support or Engineering.

The required field connections are shown in Figure 3-10, along with the connections required for sharing the in/out positioner scanner with a 2nd booth. Refer to Section 7 for junction box and control panel drawings.

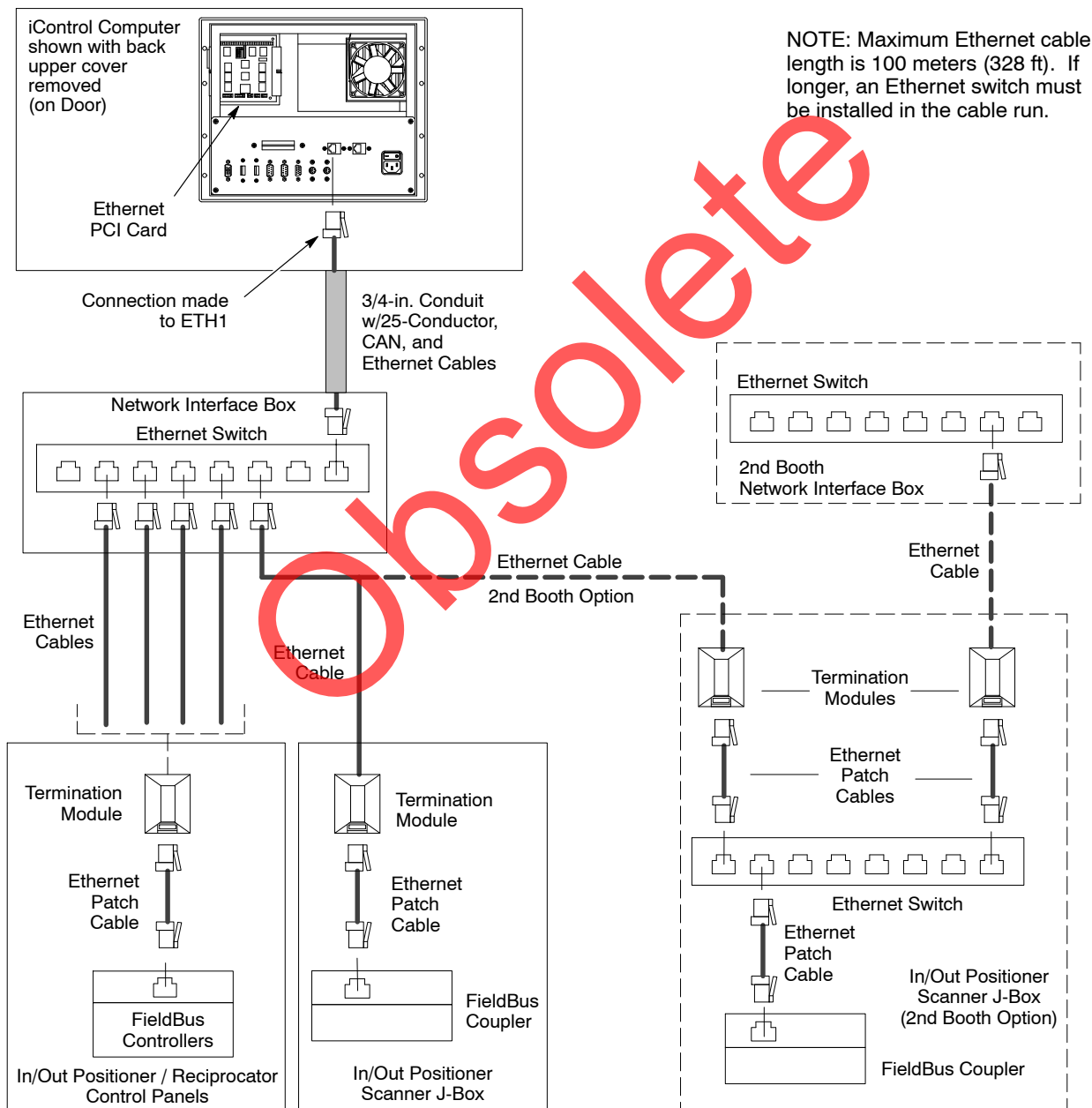


Figure 3-10 Remote I/O Network Equipment and Connections (with Connections for 2nd Booth Option)

iControl Console to Network Interface Box

Connect the 3/4 in. flexible conduit to the network interface box if you have not already done so. Plug the Ethernet cable bundled in the conduit to any unused port in the Ethernet switch. The other end of the cable is plugged into the iControl PC Ethernet card.

Ethernet Switch to Ethernet Devices

NOTE: There are two Ethernet cable types, T568-A and T568-B. The type determines the way the cable leads are wired at each end of the cable. Either type of cable can be used in the iControl system. **Each end of the cable must be terminated using the same wiring arrangement.**

Refer to the *Parts* section for 100- or 300-foot T568-B Ethernet CAT 5e cables. Use these cables to connect the Ethernet switch in the network junction box to the Ethernet controllers in the junction boxes and control panels.

1. Measure the lengths needed plus enough slack at each end so that you can pull the cables into the junction boxes and then connect the cables to termination modules or RJ-45 plugs.
2. Cut the cables to length, leaving an RJ-45 plug on one end.
3. Pull the cut ends of the cables through flexible conduit from the network interface box to the junction boxes or control panels.
4. In the network interface box, plug the cables into the Ethernet switch.
5. At the junction boxes or control panels terminate the cables with one of these methods:
 - Each junction box or control panel includes a termination module and patch cord. Install the termination modules on the end of the cables as described in *Connecting Termination Modules to Ethernet Cables* on page 3-17, then use the patch cords to connect the termination modules to the Ethernet controllers.
 - Install RJ-45 plugs on the ends of the cables as shown in *Ethernet Termination Standards* on page 3-19 and plug the cables into the Ethernet controllers.

NOTE: It is a good idea to test all cables with an Ethernet continuity tester before connecting them. Refer to *Troubleshooting* for test procedures.

MAC Addresses

Record the MAC address and device function for each Ethernet controller in the junction boxes and control panels. For the in/out positioners note the location (left front = GM1, right front = GM2, left rear = GM3, right rear = GM4). The MAC addresses are on the controller labels, in the form 0:30:DE:0:33:C8.

You will need the MAC addresses when configuring the network with the iControl operator interface. Refer to the *iControl Operator Interface* manual for instructions.

Connecting Termination Modules to Ethernet Cables

iControl junction boxes and control panels containing Ethernet devices are equipped with T568-B Ethernet termination modules and 2-foot T568-B patch cords. To connect the termination modules to the Ethernet cables coming from the network junction box, you will need a cable jacket stripper, a 110 punch-down tool, and a diagonal cutter.

- cable jacket stripper
- 110 punch-down tool
- diagonal wire cutter

See Figure 3-11.

1. Remove the surface mount box and termination module from the junction box.
2. Remove the cover and bezel from the surface-mount adapter. Use a small flat screwdriver to remove the old-style cover; squeeze the clips on each side of the new-style cover to remove it.
3. Remove the cable entry knockout from the cover.
4. Strip back the cable jacket no less than 50 mm (2 in.). Do not strip the wire insulation.
5. Keeping each pair twisted together, lay the wires one at a time into the module slots and punch them down, using the B color code as shown in the illustrations.

NOTE: A minimum of 6.4 mm ($\frac{1}{4}$ in.) of wire must extend beyond the module slot to ensure a good connection.

6. Clip off the ends of the wires close to the termination module so the ends of the wires cannot contact each other.
7. **Side-connect modules:** Slide the termination module into the adapter, then install the bezel onto the adapter.
Rear-connect modules: Snap the termination module into the bezel, then install the bezel onto the adapter.
8. Secure the cable to the adapter with a cable tie.
9. Snap the adapter cover into place.
10. Locate the assembled surface mount box close enough to the fieldbus device to make the patch cable connection. Secure the adapter to the junction box with the included piece of two-sided adhesive tape.

Connecting Termination Modules to Ethernet Cables (contd)

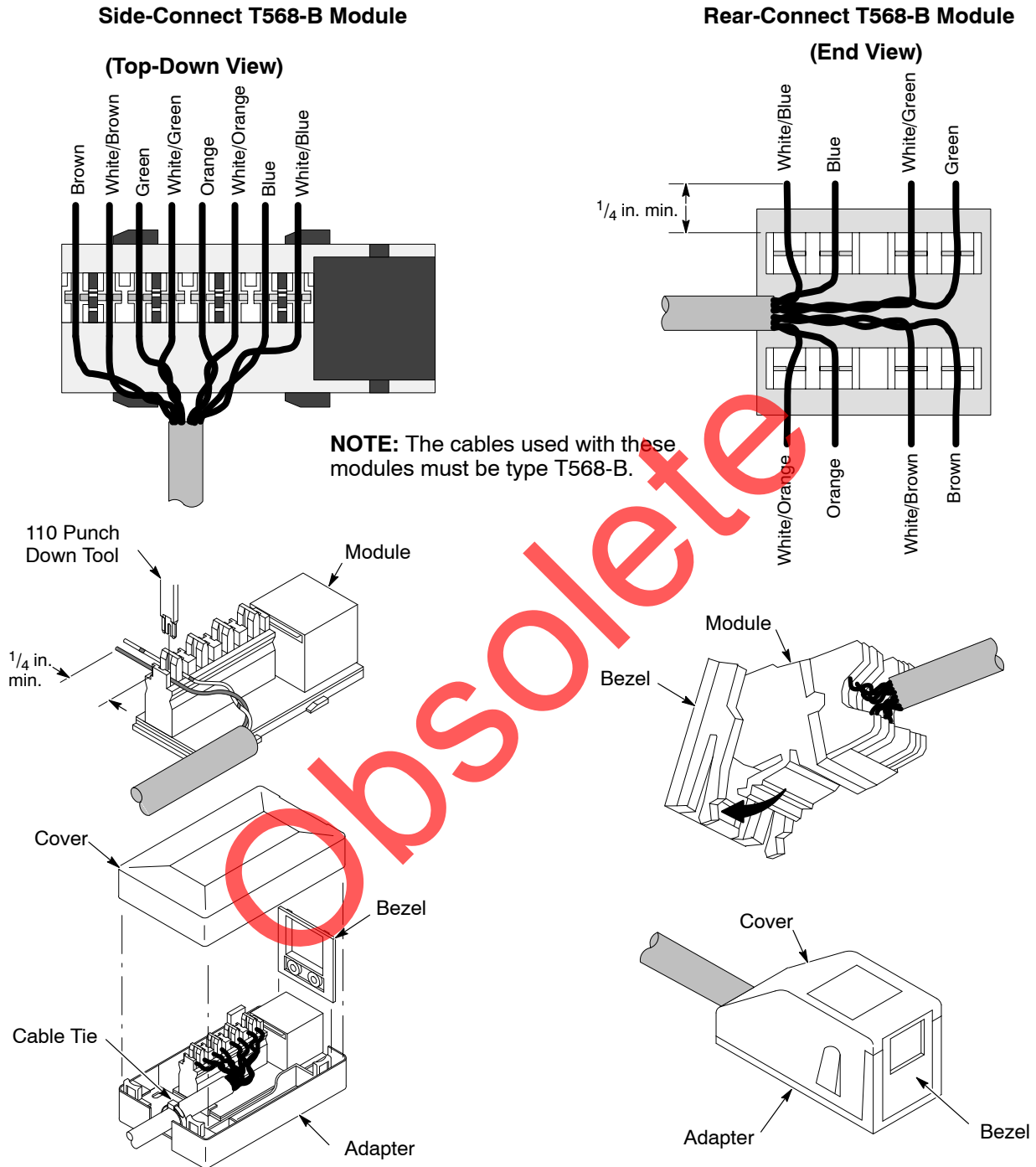


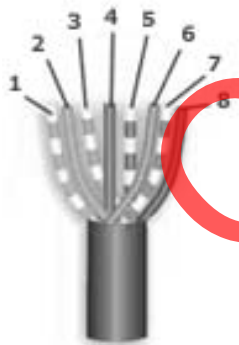
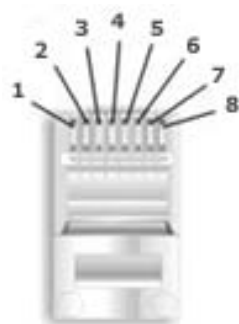
Figure 3-11 Connecting Ethernet Termination Modules to Ethernet Cable

Ethernet Termination Standards

Either T568-B or T568-A cables will work in the iControl system. Use the wiring diagrams in Figure 3-12 when terminating Ethernet cables. Make sure each end of the cable is terminated using the same type of plug and wiring arrangement.

Type T568-B Wiring Diagram

| Pin | Color |
|-----|--------------|
| 1 | Orange/White |
| 2 | Orange |
| 3 | Green/White |
| 4 | Blue |
| 5 | Blue/White |
| 6 | Green |
| 7 | Brown/White |
| 8 | Brown |



Type T568-A Wiring Diagram

| Pin | Color |
|-----|--------------|
| 1 | Green/White |
| 2 | Green |
| 3 | Orange/White |
| 4 | Blue |
| 5 | Blue/White |
| 6 | Orange |
| 7 | Brown/White |
| 8 | Brown |

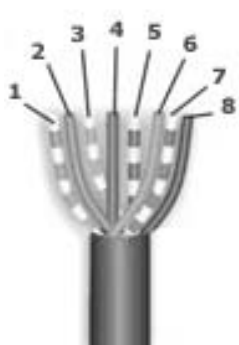
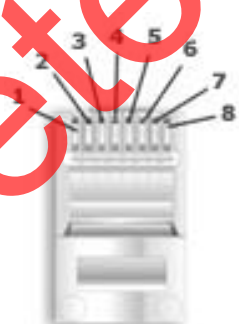


Figure 3-12 Ethernet Termination Standards

Gun Cable Connections

See Figure 3-13. Connect the automatic gun cables to the receptacles on the bottom rear panel of the iControl console. Connect gun 1 cable to receptacle 1, gun 2 cable to receptacle 2, and so on.

Odd Number of Guns

iControl systems are sold configured for an even number of guns. Each gun controller card in the console controls two guns. If you configure the system for an odd number of guns, the fault LED on the card with only one gun connected will light.

NOTE: The unused gun must be the highest even-number gun. For example, if you have an 8-gun system, then number 8 must be the unused gun. The gun card receptacles are labeled on the circuit boards as A (odd number gun) and B (even number gun).

Included in the bag with the console keys is a seal and jumper. The jumper will disable the gun not detected fault LED on the gun card.

Cap the unused cable receptacle with the bulkhead seal, then open the console door and unplug the receptacle harness from the gun card. Install the jumper in the card receptacle.

Refer to the Parts section for seal and jumper part numbers.

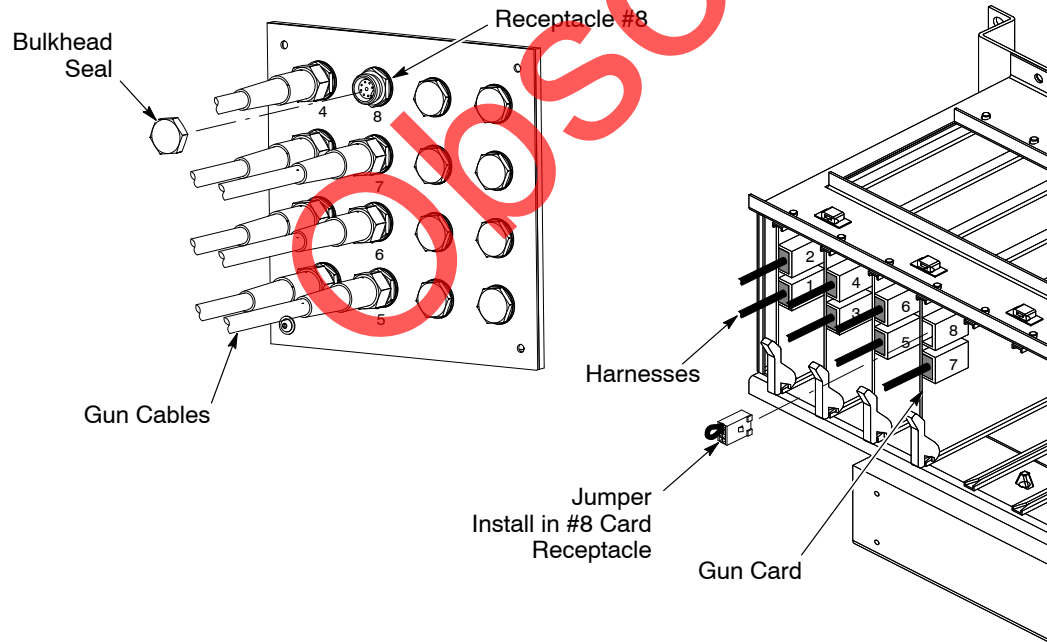


Figure 3-13 Seal and Jumper Installation – Example Showing 8 Gun System Using 7 Guns

Pneumatic Connections

Supply Air Requirements

| | |
|-----------------------------|--------------------------------------------------------|
| Maximum input air pressure: | 7.6 bar (110 psi) |
| Minimum input air pressure: | 6.2 bar (90 psi) |
| Connection: | 1- ¹ / ₁₆ –12 JIC, on rear panel |
| Air hose: | 19 mm (³ / ₄ in.) minimum ID |

The compressed air supply must be clean and dry. Use prefilters and coalescent filters with automatic drains and a refrigerated or regenerative desiccant air dryer capable of producing a 3.4 °C (38 °F) dewpoint at 7 bar (100 psi). A 5-micron filtration system is recommended.

A five-foot air hose is provided with the console. Connect one end of the hose to the 1-¹/₁₆–12 JIC threaded male connector at the ball valve. Connect the other end of the hose to your air supply.

NOTE: If supplying air to both a master and slave console, run a separate hose to each console from the air drop. Do not daisy chain the air supply hoses from one console to the next. Doing so will affect the air supply to the second console.

Gun and Pump Air Connections

See Figure 3-14 for console gun and pump air connections and fitting layout.

Connect flow-rate and atomizing air tubing from the quick-disconnect fittings on the console to the spray gun pumps as follows:

- Flow-Rate: 8-mm **black** air tubing to pump fitting marked **F**.
- Atomizing: 8-mm **blue** air tubing to pump fitting marked **A**.

Connect the tubing so that gun 1 pump is connected to gun 1 console fittings, and so on.

Connect 4-mm clear air tubing from the gun air (electrode wash) connectors on the console rear door to the spray guns. Verify all the tubing is correctly connected, so that gun 1 is connected to the gun 1 fitting and so on.

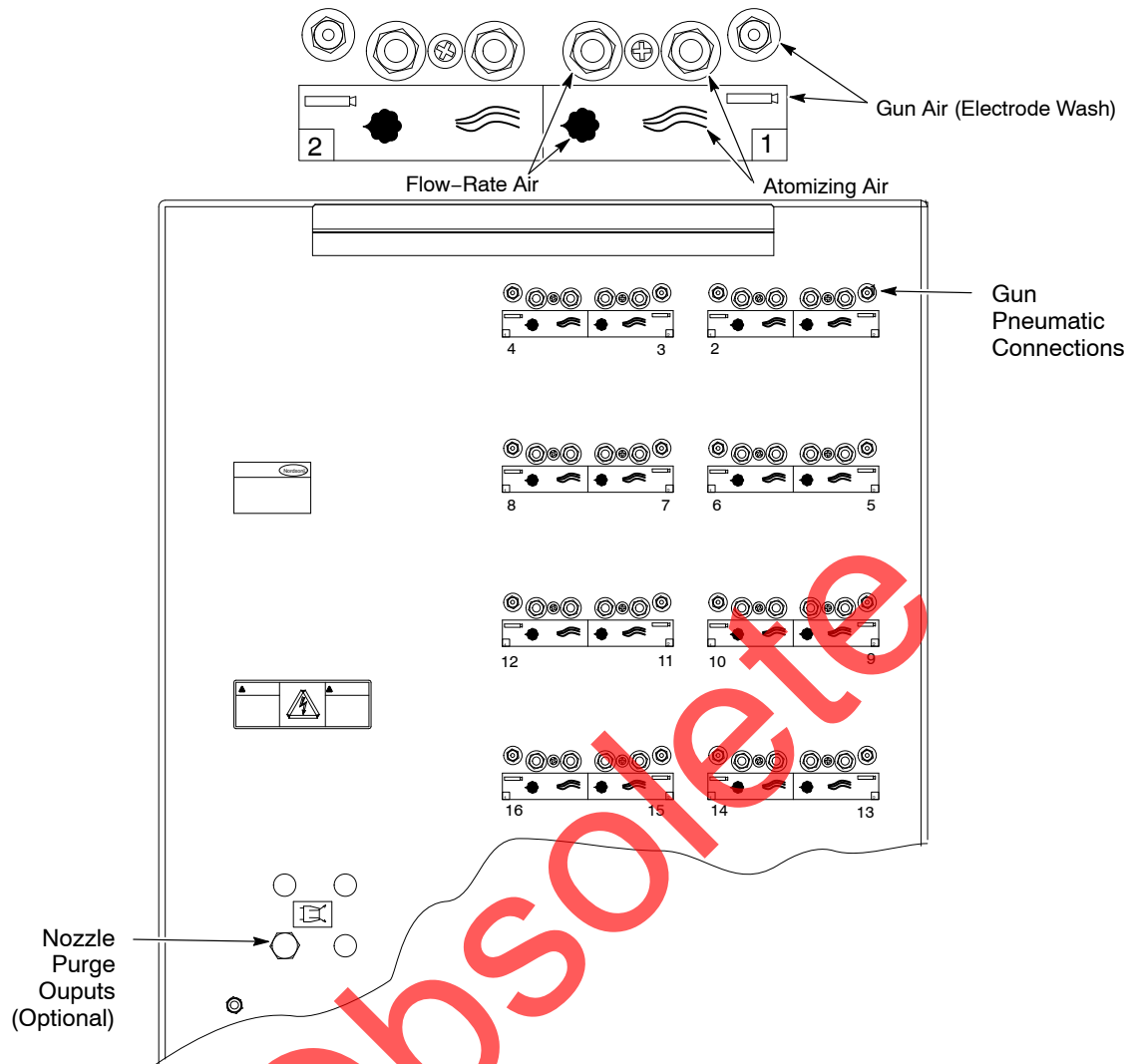


Figure 3-14 Console Rear Panel (Cover Removed)

Program and User Data Cards

The iControl program and user configuration and preset data are stored on two 128 Mb or larger CompactFlash (CF) cards. These cards function as removable hard drives. The iControl consoles are shipped with these cards installed.



CAUTION: The CompactFlash cards CANNOT be hot-swapped. Shut down the iControl program and operating system, then turn off the iControl console before removing the cards. Removing the cards while power is on could corrupt the data on the cards and damage the cards.



CAUTION: Never turn off console power without first shutting down the iControl program and operating system. Doing so could corrupt the system software. Refer to *Program Shutdown* in the *iControl Operator Interface* manual for the shutdown procedure.

The CompactFlash card slots are on the back on the PC. The top card (1) is the data card; the bottom card (2) is the program card.

NOTE: To remove a card, simply pull it out of the slot.

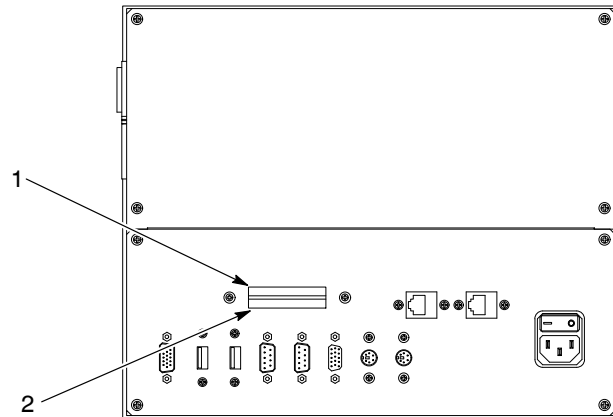


Figure 3-15 User Data and Program Card Locations

1. Data Card

2. Program Card

The iControl program can be updated by installing a new program card.

In addition to the configuration data, up to 255 presets per gun can be stored on one data card. Additional cards will provide you with a virtually unlimited number of presets. To back up a data card use the Data Backup function. This copies the data to a blank card. Refer to *Data Backup* in the *iControl Operator Interface* manual for instructions.

NOTE: Not all CompactFlash cards are the same. If you purchase additional cards, make sure they are from a Nordson-approved manufacturer and are 128 Mb or greater. For approved CF cards, refer to *Specifications* in the *Description* section of this manual or contact your Nordson controls engineer or Nordson Technical Support.

Touch Screen Calibration

The touch screen is calibrated at the factory before the system is shipped. The touch screen calibration values are stored on the program card. If you install a new program card that has never been used before, there will be no calibration file on the card. The system will automatically start the calibration procedure.

Follow the calibration instructions on the screen exactly, using your finger to touch the targets. When you have completed the calibration procedure, touch the **iControl** button to start the iControl software.

Refer to *Troubleshooting* for a complete description of the calibration procedure and instructions on calibration.

System Upgrades

iControl systems can be upgraded by:

- adding additional guns to an existing console
- adding a slave console
- installing a new program flash card with updated software.

Certain upgrades require updates to the gun control card and iFlow module firmware. These upgrades should only be done by a Nordson representative.

Adding Guns to Existing iControl Console

Master and slave consoles are sold configured for 4, 6, 8, 10, 12, 14, or 16 guns. If your consoles were configured for less than 16 guns, additional guns can be added by ordering and installing the required parts listed below.

For each new gun added, use the requirements listed below to determine the components needed. The sum of the parts required for each gun equals the total parts required.

For example: For 2 guns added, determine the parts required for the first gun, then assume the first gun has been added and determine the parts required for the second gun.

Requirements to Add One Gun

If existing console has odd number of guns, add:

- Gun receptacle harness 1031501.

If existing console has 2, 6, 10, or 14 guns, add:

- Gun card 1107144
- Gun receptacle harness 1031501
- iFlow module 1036657
- 10 mm tubing 900740 (6 ft)
- iFlow module screws 1034033 (2)
- iFlow module washers (983128 (2)
- iFlow module short jumper harness 1027327

If the existing console has 4, 8, or 12 guns, add all parts for 2, 6, 10, or 14 guns listed above, and also add:

- Regulator 1033878
- Regulator screws 982802 (4)
- Tube connector 972240
- Tube fitting 1034000
- Tube plug 148256
- 10 mm tubing 900740 (6 ft)
- 12 mm tubing 900613 (4 ft)
- iFlow module long jumper harness 1027328
- iFlow Air Flow Verification Kit 1039881 (Required to adjust regulated pressure to iFlow modules, see kit instructions for procedure.)

Procedure:

NOTE: Steps 4–11 cover installing additional regulators, iFlow modules and gun control cards. If your console has an odd number of guns you can skip these steps.

1. If adding guns requires adding new iFlow modules to the console, shut off the air supply to the console and trigger one of the guns to bleed the air pressure from the console.
2. Shut down the powder coating system. Disconnect and lock out power to the system and the iControl consoles.
3. Install the new spray guns in the booth and powder pumps on the feed hoppers or feed center. Install powder feed hose between the pumps and the guns.
4. Install the new iFlow module(s) on the rear wall with the fasteners provided. Make sure the module gasket seals against the wall.

NOTE: Modules must be installed from top to bottom and left to right.

5. Connect the new modules together with new CAN network harnesses. Refer to the *iControl Wiring and Pneumatic Diagrams* for harness requirements and connections.
6. Disconnect the network termination harness from the last old module and connect it to the last new module.
7. If installing a new regulator, install it on the next available mounting bracket from the top on the right inside wall.
8. Use 12-mm tubing to connect the regulator to an unused fitting on the air supply manifold, mounted on the rear wall near the bottom of the console.
9. Connect the iFlow modules to the regulator with 10-mm tubing.
10. Set the iFlow module network addresses as described on page 3-4.
11. Install the new gun control cards in the card cage, starting with the first open slot. Cards are installed from left to right.
12. Install the gun control harness receptacles in the rear panel, starting with the first unused knockout in the row of existing gun control harness receptacles. Plug the harnesses into the gun control card receptacles. Use the existing harness installations as a guide.
13. Connect the spray gun cables to the new harness receptacles as described on page 3-20.
14. Connect 8-mm blue and black air tubing from the flow module flow-rate and atomizing air fittings to the new powder pumps as described on page 3-21.
15. Connect clear 4-mm air tubing from the flow module gun air fittings to the new spray guns as described on page 3-21.

16. If you installed a new regulator, you must calibrate it for the correct pressure output. Use an iFlow air flow verification kit and follow the instructions in the kit instruction sheet. Refer to *Miscellaneous Kits* in *Parts* for the kit part number.

NOTE: If your instruction sheet does not contain the calibration instructions you can download a new version of the sheet (1039518B or above) from <http://emanuals.nordson.com/finishing>, Powder-US>Booths and Systems>Booth and Trigger Controls, or contact the Nordson Finishing Customer Support Center or your local Nordson representative for instructions.

17. Turn on the console and configure the iControl program to add the new guns to the system. Refer to *Gun Configuration* in the *iControl Operator Interface* manual.
18. Set pickoff points for the new guns as described in the *Configuration* section of the *iControl Operator Interface* manual.
19. Set up presets for the new guns as described in the *Preset Setup* section of the *iControl Operator Interface* manual.

Adding a Slave Console to an Existing System

Adding a slave console increases the system capacity to 32 guns.

1. Connect the slave console power cable and ground cable as described on page 3-6.
2. Connect the slave console to the master console with the provided network cable. Connect the network cable from the CAN OUT terminal block on the master console backplane to the CAN AUX terminal block on the slave console backplane. Route the cable through dust-tight strain reliefs. Refer to page 3-2.
3. Set the slave console network address to console 2 as described on page 3-3.
4. Set the slave console iFlow module network addresses as described on page 3-4.
5. Connect the compressed air supply to the slave console as described on page 3-21.
6. Connect the spray gun cables and the flow-rate, atomizing, and gun air tubing to the slave console as described on page 3-20.
7. Turn on the console and configure the iControl program to add the new guns to the system. Refer to *Gun Configuration* in the *iControl Operator Interface* manual.
8. Set pickoff points for the new guns as described in the *Configuration* section of the *iControl Operator Interface* manual.
9. Set up presets for the new guns as described in the *Preset Setup* section of the *iControl Operator Interface* manual.

Obsolete

Section 4

Troubleshooting



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.



CAUTION: Do not turn off console power without first performing a program shutdown. Doing so could corrupt the iControl program and operating system on the program card. Refer to *Program Shutdown* in the *Configuration* section of the *iControl Operator Interface* manual for the shutdown procedure.

NOTE: If the troubleshooting procedures in this section do not solve your problem, contact the Nordson Finishing Customer Support Center at (800) 433-9319 or your local Nordson representative.

Error Codes and Alarm Messages

Table 4-1 Error Codes and Messages

| Code | Message Text | Description | Refer to Page |
|------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------|---------------|
| NA = Not currently applicable | | | |
| * – Code may differ on early software releases | | | |
| 10x | CAN and Node State | | |
| 101 | CAN bus fault detected | N/A | 4-7 |
| 102 | CAN receive buffer overflow | Host CAN interface receive too much data and could not process it quickly enough | 4-7 |
| 103 | Message timeout | Remote CAN device did not respond to a direct response in the allotted time. | 4-7 |
| 104 | Went offline | Remote CAN device is no longer online | 4-7 |
| 105 | Returned to online | Remote CAN device returned to service | 4-7 |
| 106 | Communication error | Host CAN interface detected a communication error | |
| 107 | BUS-OFF | 255 bad CAN messages received | |
| 108 | Warning Limit exceeded | 127 bad CAN messages received | |
| 109 | Bit error | Dominant bit not detected in 5 data bits | |
| 110 | Form error | Fixed format data field contains illegal bits | |
| 111 | Stuffing error | Recessive bit not detected in 5 data bits | |
| Continued... | | | |

| Code | Message Text | Description | Refer to Page |
|------------|--------------------------------------------|------------------------------------------------------------------------------------------|---------------|
| 112 | Other error | Other errors not listed as Bit, Stuff, or Form | |
| 113 | CAN Transmit Buffer overflow | Host CAN interface did not transmit data quickly enough | |
| 20x | Application | | |
| 201 | Conveyor input not detected | Not implemented, future release | |
| 202 | Encoder not detected | Not implemented, future release | |
| 203 | Zone photoeye stuck on | Not implemented, future release | |
| 204 | Flag photoeye stuck on | Not implemented, future release | |
| 205 | Application setup | Not implemented, future release | |
| 206 | System in lockout | Not implemented, future release | |
| 30x | Electrostatic Controller (Gun Card) | | |
| 301 | Micro-Amp fault detected | Microamp value out of range. | 4-8 |
| 302 | Overcurrent fault detected | Overcurrent detection. | 4-8 |
| 303 | Feedback fault detected | No microamp feedback detected. | 4-8 |
| 304 | Open circuit detected | No multiplier load detected. | 4-8 |
| 305 | Short circuit detected | Multiplier drive circuit shorted. | 4-8 |
| 306 | Internal hardware fault detected | Internal DSP fault. | 4-9 |
| 308 | Gun not detected | Gun not connected to system. | 4-9 |
| 40x | iFlow Controller | | |
| 401 | Flow valve not detected or bad | The solenoid resistance was not detected or incorrect when the device was not triggered. | 4-13 |
| 402 | Atomize valve not detected or bad | The solenoid resistance was not detected or incorrect when the device was not triggered. | 4-13 |
| 403 | Auxillary solenoid not detected or bad | The solenoid resistance was not detected or incorrect when the device was not triggered. | 4-13 |
| 404 | Flow air flow low | Air flow less than commanded value. | 4-13 |
| 405 | Atomize air flow low | Air flow less than commanded value. | 4-13 |
| 406 | Flow air flow hi | Air flow more than commanded value. | 4-14 |
| 407 | Atomize air flow hi | Air flow more than commanded value. | 4-14 |

Continued...

| Code | Message Text | Description | Refer to Page |
|-------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------|
| 5xx | Remote Device Node | | |
| Electrostatic Node (Gun Card) | | | |
| 531 | System Heartbeat lost | Remote device lost heartbeat message. | 4-9 |
| 532 | 5/24 Volt power | Remote device power detection failure. | 4-9 |
| 533 | Error writing to internal EEPROM | Error saving data to remote device onboard EEPROM. | 4-9 |
| 534 | Error reading from internal EEPROM | Error reading data from remote device onboard EEPROM. | 4-9 |
| 535 | Node address changed from last powerup | The saved address does not match the current address for the remote device. Sending a reset command will clear this state. | 4-9 |
| 536 | Internal database version changed – resetting to defaults | An update to the database was detected and the current data is no longer valid. | 4-9 |
| 537 | Preset out of range | The preset sent to the remote device was out of range. | 4-9 |
| 538 | Trigger ON message received – controller in lockout | Remote device was commanded to trigger while in lockout. | 4-9 |
| iFlow Node | | | |
| 541 | System Heartbeat lost | Remote device lost heartbeat message. | 4-14 |
| 542 | 5/24 Volt power | Remote device power detection failure. | 4-14 |
| 543 | Error writing to internal EEPROM | Error saving data to remote device onboard EEPROM. | 4-14 |
| 544 | Error reading from internal EEPROM | Error reading data from remote device onboard EEPROM. | 4-14 |
| 545 | Node address changed from last powerup | The saved address does not match the current address for the remote device. Sending a reset command will clear this state. | 4-14 |
| 546 | Internal database version changed – resetting to defaults | An update to the database was detected and the current data is no longer valid. | 4-14 |
| 547 | Preset out of range | The preset sent to the remote device was out of range. | 4-14 |
| 548 | Trigger ON message received – controller in lockout | Remote device was commanded to trigger while in lockout. | 4-14 |
| Continued... | | | |

| Code | Message Text | Description | Refer to Page |
|--------------|---------------------------------------------|---------------------------------------------------------------------------------|---------------|
| 80x | User Interface | | |
| 801 | Backup operation failure* | Not implemented, future release | |
| 802 | Database compare failure* | Not implemented, future release | |
| 803 | Copy program failed to start* | Not implemented, future release | |
| 804 | Compare program failed to start* | Not implemented, future release | |
| 805 | Gun trigger error* | Not implemented, future release | |
| 806 | Flow/pump trigger error* | Not implemented, future release | |
| 90x | Ethernet Networking | | |
| 901 | I/O error | Ethernet I/O communication failure. | 4-15 |
| 902 | Port or socket open error | The Ethernet connection failed to open for service. | 4-15 |
| 903 | Serial port already open | The Ethernet connection is already open and received an open command. | 4-15 |
| 904 | TCP/IP connection error | Unable to connect to remote device. | 4-15 |
| 905 | TCP/IP connection was closed by remote peer | Remote device closed the I/O connection. | 4-15 |
| 906 | Socket library error | The socket library returned error status. | 4-15 |
| 907 | TCP Port already bound | Requested TCP port is in use by another application. | 4-15 |
| 908 | Listen failed | The local system cannot detect activity on the Ethernet network. | 4-15 |
| 909 | File descriptors exceeded | Too many connections are open. | 4-15 |
| 910 | No permission to access serial or TCP port | The program requesting the Ethernet resource does not have permission to do so. | 4-15 |
| 911 | TCP Port not available | The requested port is busy or otherwise not available. | 4-15 |
| 917 | Checksum error | Data packets were received with errors. | 4-15 |
| 918 | Invalid frame error | Data packets were received with errors. | 4-15 |
| 919 | Invalid reply error | Data packets were received with errors. | 4-15 |
| 920 | Reply time-out | A reply to a request was not received in time. | 4-15 |
| 921 | Modbus exception response | An illegal Modbus command was detected. | 4-15 |
| 925 | Illegal Function exception response | An illegal function call was detected. | 4-15 |
| 926 | Illegal Data Address exception response | An illegal address was detected. | 4-15 |
| 927 | Illegal Data Value exception response | An illegal data value was detected. | 4-15 |
| 928 | Slave Device Failure exception response | The slave device returned an exception. | 4-15 |
| Continued... | | | |

| Code | Message Text | Description | Refer to Page |
|-------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------|
| 100x, 110x | Positioner | | |
| 1001 | E-Stop OPEN | The E-Stop circuit is open. | 4-18 |
| 1002 | Encoder failure | The encoder is not responding when motion is commanded or is responding with defective signals. | 4-18 |
| 1003 | Motor Protector | The motor protector is open. | 4-19 |
| 1004 | Motion Controller | The motion controller indicates a failure. | 4-19 |
| 1005 | Forward Contactor | The forward contactor did not engage. | 4-19 |
| 1006 | Reverse Contactor | The reverse contactor did not engage. | 4-19 |
| 1007 | Forward End of Travel Limit | The machine is at the forward end of travel limit. | 4-20 |
| 1008 | Reverse End of Travel Limit | The machine is at the reverse end of travel limit. | 4-20 |
| 1112 | Positioner not in ready state for Color Change | The positioner has not reached the proper location for color change. | 4-20 |
| 200x, 210x | Reciprocator | | |
| 2001 | E-Stop Open | The E-Stop circuit is open. | 4-25 |
| 2002 | Encoder failure | The encoder is not responding when motion is commanded or is responding with defective signals. | 4-25 |
| 2003 | Motor Protector | The motor protector is open. | 4-26 |
| 2004 | Motion Controller | The motion controller indicates a failure. | 4-26 |
| 2005 | Forward Contactor | The forward contactor did not engage. | 4-26 |
| 2006 | Reverse Contactor | The reverse contactor did not engage. | 4-26 |
| 2007 | Forward End of Travel Limit | The machine is at the forward end of travel limit. | 4-27 |
| 2008 | Reverse End of Travel Limit | The machine is at the reverse end of travel limit. | 4-27 |
| 2101 | Part size less than minimum | The part detected is too small. The reciprocator will attempt to stroke at the minimum length. | 4-27 |
| 2102 | Lead gun not defined – using gun 1 | The lead gun on the reciprocator is not defined. | 4-27 |
| 2103 | Trail gun not defined – using gun 1 | The trailing gun on the reciprocator is not defined. | 4-27 |
| 2104 | Trail gun less than lead – trail = lead | The trailing gun number is less than the lead gun number. | 4-27 |
| 2105 | Pattern width not set – using 12 inches (305 mm) | The pattern width has not been set using default. | 4-27 |
| 2106 | Vertical scanner not configured – recip mode 1 invalid | A vertical scanner is required for variable stroke operation. | 4-27 |
| 2107 | Speed calculated less than minimum | The speed of the reciprocator is less than the minimum value allowed. | 4-28 |
| Continued... | | | |

| Code | Message Text | Description | Refer to Page |
|-------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------|
| 2108 | Speed calculated greater than maximum | The speed of the reciprocator is greater than the maximum value allowed. | 4-28 |
| 2113 | Reciprocator not in ready state for Color Change | The reciprocator is not in the proper position for color change. | 4-28 |
| 300x | Watchdog | | |
| 3100 | Positioner Watchdog fault | The remote Ethernet device did not respond with a watchdog signal in 1 second. | 4-20 |
| 3200 | Reciprocator Watchdog fault | The remote Ethernet device did not respond with a watchdog signal in 1 second. | 4-28 |
| 410x | Color Change | | |
| 4109 | Clean cycle aborted arch clean operation – waiting on park release | Clean cycle detected an abort – waiting for user to press park to release. | 4-20 |
| 4110 | Clean cycle aborted by user action – park release detected | Clean cycle aborted by user – part release was detected. | 4-20 |
| 4111 | Clean cycle aborted detected machine lockout/watchdog | A machine malfunction aborted the cleaning operation. | 4-20 |

CAN Network Errors

Table 4-2 CAN Network Messages>>> 15 <<<

| Error Code | Message | Cause/Correction |
|------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 101 | CAN bus fault detected | Hardware error. Check the CAN cable for shorts. If the cable is good, replace the PC104 CAN card. |
| 102 | CAN receive buffer overflow | Host CAN interface received too much data and could not process it quickly enough. Reboot the system. |
| 103 | Message timeout | Remote CAN device did not respond to a direct request in the allotted time. Check the gun card or iFlow card. |
| 104 | Went offline | Normal operational message. The user will see this message if the booth exhaust fan is shut off, which removes power from gun cards, or if the gun card is disconnected, or if the iFlow module is disconnected from the CAN network. |
| 105 | Returned to online | Normal operational message. No action required. |
| 107 | Communications errors | These error messages indicate that communications on the iControl CAN bus may be having problems. Troubleshooting should include verification of all CAN cable connections and grounding, and gun cable connections and continuity. CAN errors can also be caused by individual gun cards or the iControl PC to PC104 card interface. These errors do not indicate a specific device failure as all devices are in parallel on the CAN bus. |
| 108 | | |
| 109 | | |
| 110 | | |
| 111 | | |
| 112 | | |
| 113 | | |

Gun Card Troubleshooting

Refer to Figure 4-1 and Tables 4-3 and 4-4. Use the fault codes on the Gun Control screens, the fault messages on the Alarm screen, and the LEDs on the gun control cards to diagnose problems with the gun control cards.

Gun Card Error Codes and Fault Codes

These faults, except for E16, will activate the alarm relay.

Table 4-3 Gun Card Error and Fault Codes>>> 16 <<<

| Error Code | Message | Fault Code | Meaning/Correction |
|------------|----------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 301 | Micro–Amp fault detected | – | Microamp value out of range. |
| 302 | Overcurrent fault detected | E15 | Overcurrent detected. Clear the fault, unplug the cable from the gun and trigger the gun. <ul style="list-style-type: none"> If the fault changes to E7, check the resistance of the multiplier as described in the gun manual. If the fault code stays E15, check the continuity of the cable as described in the gun manual. |
| 303 | Feedback fault detected | E3 | Microamp feedback not detected. Check the gun current with no parts in front of the gun. If the current is 105 μ A, check for a short circuit of the current feedback wires in the gun cable: Unplug the cable from the gun and trigger the gun. <ul style="list-style-type: none"> If the fault stays E3, replace the cable. If the fault changes to E7, check the resistance of the multiplier as described in the gun manual. |
| 304 | Open circuit detected | E7 | Gun cable or multiplier open circuit. If the current display is 1 μ A or less, check the multiplier cable and electrode assembly for loose connections. <ul style="list-style-type: none"> If the connections are secure, check the multiplier with an ohmmeter as described in the gun manual. If the multiplier reading is acceptable, check for a defective cable as described in the gun manual. |
| 305 | Short circuit detected | E8 | Gun cable or multiplier short circuit. Unplug the cable from the gun and trigger the gun. <ul style="list-style-type: none"> If the fault changes to E7, check the resistance of the multiplier as described in the gun manual. If the fault code stays E8, check the continuity of the cable as described in the gun manual. |

Continued...

| Error Code | Message | Fault Code | Meaning/Correction |
|------------|-----------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 306 | Internal hardware failure | E11 | Internal DSP fault in gun control card.>>> 17 <<< 1. Turn off the power to the system. 2. Unplug the cable from the back of the gun. 3. Turn on the power to the system. If the fault code changes to E7 (open circuit), the card is working correctly. Check the gun multiplier. If the fault code remains at E11, replace the gun control card. |
| 308 | Gun not detected | E16 | Gun not connected to system. Check the gun cable connections and make sure the gun card is seated securely into the backplane. This is a normal indication if power to cards is removed, such as when the booth exhaust fan is shut off. |
| 531 | System heartbeat lost | – | Check circuit board connections. |
| 532 | 5/24 volt power | – | Check circuit board connections. |
| 533 | Error writing to internal EEPROM | – | Hardware error. Replace card. |
| 534 | Error reading to internal EEPROM | – | Hardware error. Replace card. |
| 535 | Node address changed from last power up | – | Saved address does not match current address. Address switches were changed. Informational message only. |
| 536 | Internal database version changed – resetting to defaults | – | An update to the database was detected and the current data is no longer valid. Informational message only, operation should not be affected. |
| 537 | Preset out of range | – | The preset sent to the remote device was out of range. Check preset settings and reset as required. |
| 538 | Trigger ON message received – controller in lockout | – | The card was commanded to trigger but the system is locked out. Trigger ON commands will be ignored until the system is returned to the Run state. |

Gun Card LEDs

See Figure 4-1. Use the card LEDs to help diagnose problems.

Table 4-4 Gun Card LEDs

| LED | Color | Function | Correction |
|------------------------------------|--------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fault | Red | Lights when a fault is detected (communication, gun cable, RAM, or hardware). | If two guns are not connected to the card this LED will light. If you have an odd number of guns in the system, unplug the unused harness and install the jumper plug shipped with the console. (Refer to <i>Odd Number of Guns</i> below or the <i>Installation</i> section.) Make sure the card is seated in the backplane. Open the Alarm screen and clear all faults. Replace the card if the malfunction cannot be corrected. |
| Status | Green | Flashing (heartbeat) when communicating properly with system. | If the status LED is not flashing, make sure the card is seated in the backplane. Turn console power off and on. Replace the card if the other gun control cards have heartbeats. |
| Gun Limit B (even-numbered gun) | Yellow | Lights if over-current protection circuit triggered due to high current draw from gun drive circuit. | Refer to the corrections for Fault Code E15 in Table 4-3. |
| Gun Limit A (odd-numbered gun) | | | |
| Power | Green | Lights when power (5 volts) is applied to the board). | If the card has no power, make sure it is properly seated in the backplane and the locking tab is working correctly. Replace the card if the other gun control cards have power. |

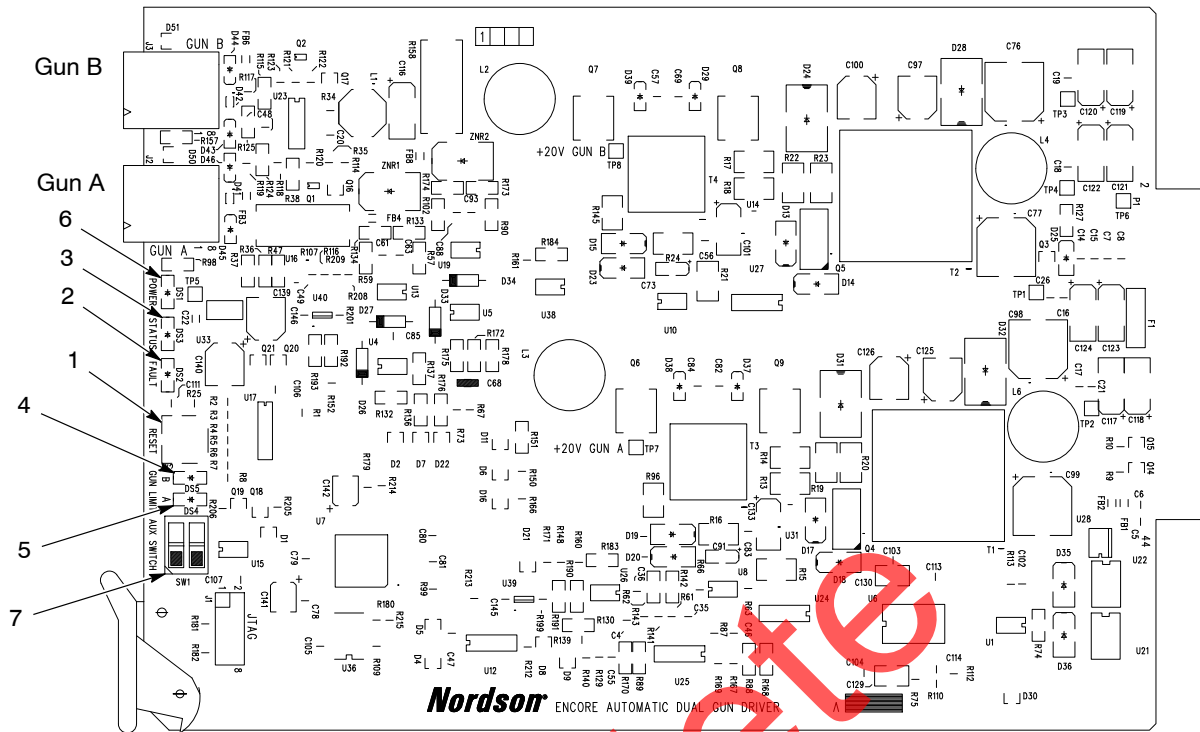


Figure 4-1 Gun Control Card LEDs and Switches

- | | | |
|--------------------------------------------------|-----------------------------|-----------------------------------------------|
| 1. Reset switch (reboots the on-board processor) | 3. Status LED (green) | 5. Gun Limit A LED (yellow) |
| 2. Fault LED (red) | 4. Gun Limit B LED (yellow) | 6. Power LED (green) |
| | | 7. SW1 (2 position DIP switch for future use) |

iFlow Module Troubleshooting

NOTE: iFlow module output can be checked with the iFlow Air Flow Verification Kit. Refer to *Miscellaneous Kits* in *Parts* for the kit part number. Instructions are supplied with the kit.



CAUTION: Handle the verification kit orifice carefully. Any damage to the orifice will result in inaccurate results.

Re-Zero Procedure

Perform this procedure if an iControl gun control screen indicates air flow when the spray gun is not triggered on, or if a Flow Air or Atomizing Air Flow High Fault (F6 or F7) appears on the Gun Control panel and the Fault screen.>>> 18 <<<

Before performing a re-zero procedure:

- Make sure the air pressure being supplied to the iControl console is higher than the minimum 5.86 bar (85 psi).
- If the regulator supplying the module being tested is new, make sure it has been calibrated for the correct pressure output. Use an iFlow air flow verification kit and follow the instructions in the kit instruction sheet. Refer to *Miscellaneous Kits* in *Parts* for the kit part number.

NOTE: The Air Flow Verification Kit instruction sheet can be downloaded from http://emanuals.nordson.com/finishing_Powder-US-iControl-System.

- Make sure no air is leaking through the module output fittings or from around the solenoid valves or proportional valves. Re-zeroing modules with leaks will result in additional errors.

See Figure 4-2.

1. Disconnect the atomizing and flow air tubing from all four of the 8-mm output ports and plug the ports with tube plugs.
2. Note the setting of address switch SW3, then set it to zero.
3. Press pushbutton switch SW1 to reset the module. The red LED should be off.
4. Press and hold pushbutton switch SW2 for about two seconds, until the red LED comes back on. Release the button. The LED will turn off again in about seven seconds. The module is now re-zeroed.
5. Move address switch SW3 back to its original position.
6. Press pushbutton switch SW1 again. The red LED should shut off.
7. Remove the tube plugs from the output ports.
8. Check the Gun Control panel. With the spray gun off, the display should show no air flow.

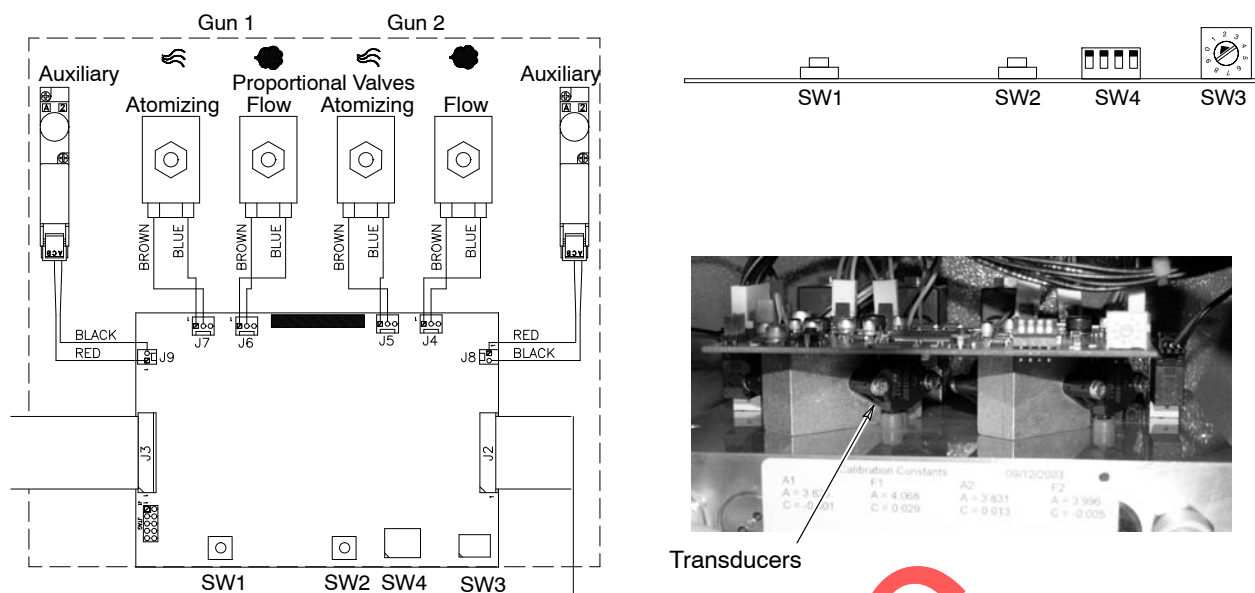


Figure 4-2 iFlow Module Switches, Flow and Atomizing Proportional Valves, and Transducers

iFlow Module Error Codes and Fault Codes

Faults F1 – F7 will activate the alarm relay.

Table 4-5 iFlow Module Fault Codes>>> 19 <<<

| Error Code | Error Message | Fault Code | Correction |
|------------|----------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 401 | Flow valve not detected or bad | F1 | See Figure 4-2. When the solenoid is not energized, the resistance of the solenoid is checked by the system. These faults are generated if no resistance is detected, or the correct resistance is not detected. Check the proportional valve wiring connections. Check the solenoid operation. Replace the valve if the solenoid is bad. |
| 402 | Atomize valve not detected or bad | F2 | |
| 403 | Auxiliary solenoid valve not detected or bad | F3 | |
| 404 | Flow airflow low | F4 | Air flow is less than commanded value. Air flow setting may be too high for the system to achieve. Do not set above 3.5 SCFM. Check the tubing from the iFlow module to the powder pump for kinks or blockage. Make sure the check valves are not blocked. Disconnect the air tubing at the pump. If the fault goes away, clean or replace the pump venturi nozzle or throat. Disconnect the air tubing from the iControl console. If the fault goes away, then the air tubing is too long or the tubing diameter is too large. If more than one module reports the same fault, check the console air supply pressure. The pressure must be above 85 psi. Check the tubing supplying air to the iFlow module for blockage. |
| 405 | Atomize airflow low | F5 | |

Continued...

| Error Code | Error Message | Fault Code | Correction |
|------------|-----------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 406 | Flow airflow high | F6 | Air flow more than the commanded value.>>> 20 <<< If the spray gun is triggered off, disconnect the air tubing from the output fitting and plug the fitting. Reset the fault. If the fault does not reoccur then the proportional valve is stuck open. Refer to Section 5, Repair, for cleaning instructions. |
| 407 | Atomize airflow high | F7 | If the spray gun is triggered on, disconnect the air tubing from the output fitting and set the flow to zero. If air is still flowing from the fitting then plug the fitting and then reset the fault. If the fault does not reoccur then the proportional valve is stuck open. Refer to Section 5, Repair, for cleaning instructions. If the fault reoccurs and the screen is showing air flow, then check for leaks around the proportional valves or transducers. Re-zero the airflow module as described on page 4-12. |
| 541 | System heartbeat lost | – | Check circuit board connections. |
| 542 | 5/24 volt power | – | Check circuit board connections. |
| 543 | Error writing to internal EEPROM | – | Hardware error. Replace card. |
| 544 | Error reading to internal EEPROM | – | Hardware error. Replace card. |
| 545 | Node address changed from last power up | – | Saved address does not match current address. Address switches were changed. Informational message only. |
| 546 | Internal database version changed – resetting to defaults | – | An update to the database was detected and the current data is no longer valid. Informational message only, operation should not be affected. |
| 547 | Preset out of range | – | The preset sent to the remote device was out of range. Check preset settings and reset as required. |
| 548 | Trigger ON message received – controller in lockout | – | The card was commanded to trigger but the system is locked out. Trigger ON commands will be ignored until the system is returned to the Run state. |

Remote I/O (Ethernet) Network Troubleshooting

All Remote I/O Network faults will activate the alarm relay. Use the fault messages on the Alarm screen along with this table to diagnose and correct Ethernet network problems. You can also use the Network Status and Node Configuration screens, and the Remote Node Troubleshooting tables on page 4-33 to diagnose problems with the remote nodes.

Table 4-6 Ethernet Network Troubleshooting>>> 21 <<<

| Error Code | Message/Condition | Correction |
|------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 901 | I/O error | Check Ethernet wiring. Remote node could be disconnected from network or turned off. |
| 902 | Port or socket open error | Programming error. Contact Nordson technical support. |
| 903 | Serial port already open | Programming error. Contact Nordson technical support. |
| 904 | TCP/IP connection error | Check Ethernet wiring. Remote node could be disconnected from network or turned off. |
| 905 | TCP/IP Connection closed by remote peer fault (any remote node fault) | <p>Ethernet network communication with the remote node has been lost. This fault may be a normal response to removing electrical power from the remote node. If the remote node is an in/out positioner or reciprocator and communication is lost while operating in Auto mode, the machine will move to the Park position.</p> <p>Check the Network Node Status screen. If communication is lost the node icon should turn red. If no nodes are red, check the Network Node Configuration screen to find the device associated with the faulted node IP address.</p> <p>If multiple node faults are displayed:</p> <p>Check the electrical power supply to all faulted nodes.</p> <p>Check the Ethernet switch in the network interface box for electrical power and proper operation. The switch power LED should be lit and the network connection LEDs should be flashing. Replace the switch if necessary.</p> <p>Check the network cable and connections between the Ethernet switch and the iControl console. Refer to <i>Testing Ethernet Cables</i> in this section.</p> <p>Check the Ethernet card on the iControl PC for proper operation. The ACT LED indicates network traffic when lit. The LNK LED to the right of the RJ45 connector indicates network status (green: 10 Mbs, amber: 100 Mbs, off: no connection). Replace the card if necessary, using only an identical or Nordson supplied replacement.</p> <p>If a single node fault is displayed:</p> <p>Check the electrical power to the remote node controller or coupler.</p> <p>Check network cables and connections between the remote node and the Ethernet switch (in the network interface box). Refer to <i>Testing Ethernet Cables</i> in this section.</p> |
| 906 | Socket library error | Programming error. Contact Nordson technical support. |
| 907 | TCP port already bound | Programming error. Contact Nordson technical support. |

Continued...

| Error Code | Message/Condition | Correction |
|---------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 908 | Listen failed | Programming error. Contact Nordson technical support. |
| <i>Continued...</i> | | |
| 909 | File descriptors exceeded | Programming error. Contact Nordson technical support. |
| 910 | No permission to access serial or TCP port | Programming error. Contact Nordson technical support. |
| 911 | TCP port not available | Programming error. Contact Nordson technical support. |
| 917 | Checksum error | Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs. |
| 918 | Invalid frame error | Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs. |
| 919 | Invalid reply error | Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs. |
| 920 | Reply time-out | Noise in network. Check for loose connections or Ethernet cables routed parallel to high voltage or VFDs. |
| 921 | Modbus exception response | Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section. |
| 925 | Illegal Function exception response | Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section. |
| 926 | Illegal Data Address exception response | Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section. |
| 927 | Illegal Data Value exception response | Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section. |
| 928 | Slave Device Failure exception response | Programming error or remote hardware error. Check Fieldbus controller functions. Refer to Remote Node Troubleshooting in this section. |
| – | Watchdog Fault (any remote node controller fault) | <p>Control program in remote node controller is not running, or controller has no program installed.</p> <p>NOTE: This fault may be a normal response to removing electrical power from the remote node.</p> <p>Check the remote node controller mode selection switch. The switch should be in the run (up) position.</p> <p>Replace the remote node controller. The replacement must be pre-programmed or a program must be downloaded and installed in the field.</p> <p>Contact Nordson Finishing Customer Support for details.</p> |
| – | Operation was successful | Normal operation. No action required. |
| – | Illegal argument error | Programming error. Contact Nordson technical support. |
| – | Illegal state error | Programming error. Contact Nordson technical support. |
| – | Evaluation expired | Programming error. Contact Nordson technical support. |

| Error Code | Message/Condition | Correction |
|------------|-------------------------------|-------------------------------------------------------|
| – | I/O error class | Programming error. Contact Nordson technical support. |
| | Fieldbus protocol error class | Programming error. Contact Nordson technical support. |

Obsolete

In/Out Positioner Troubleshooting

Use the fault messages on the Alarm screen with this table to diagnose and correct in/out positioner or reciprocator problems. Refer to Remote I/O Network Troubleshooting on page 4-15 if the fault messages indicate a communications problem (Watchdog fault or TCP/IP communications fault).

Each fault message displayed on the iControl screen is accompanied by a device and number identifier. The identifier indicates the faulted machine (for example, IN/OUT Positioner #1, Reciprocator #2). When the fault condition is corrected or cleared, the fault message will indicate a returned-to-normal status.

For all in/out positioner faults, the alarm relay contacts open to signal an alarm condition. You can use the alarm relay to activate an external alarm. Refer to Console Power Cable Connections in the Installation section for more information.

In/Out Positioner Error Code Troubleshooting

Table 4-7 In/Out Positioner Error Code Troubleshooting >> 22 <<<

| Error Code | Message | Correction |
|------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001 | E-Stop Open | In/out positioner or reciprocator E-Stop button pressed. Determine why E-Stop button was pressed and correct if necessary. Reset E-stop button when clear to do so. |
| 1002 | Encoder Failure Fault | In/out positioner or reciprocator not moving. Mechanical, motor, or motor controller failure. Change in/out positioner or reciprocator operating mode to Manual and check for proper forward and reverse (up and down) motion. If only one direction of movement, check motor control circuits. If no motion, check the following: Check the positioner carriage to make sure it moves properly. Make sure that <ul style="list-style-type: none"> the anti-tip device is adjusted properly a carriage wheel bearing has not failed no obstructions are preventing motion. Check the pulleys, belts, or other mechanical link connecting the gear reducer to the gun moving carriage. If the gear reducer is not rotating but the motor is, replace the reducer. If the drive motor is not rotating, check the motor circuit protection, motor wiring, motor controller, and motor control circuits. This fault must be reset from the iControl alarm screen. |

Continued...

| Error Code | Message | Correction |
|--------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1003 | Motor Protector | <p>Circuit protector limiting current to the in/out positioner or reciprocator motor has failed.>>> 23 <<<</p> <p>Check mechanical components of in/out positioner for proper operation. Lubricate, repair, or replace components as needed.</p> <p>Check motor electrical circuit between protector and motor. Repair or replace wiring, terminals, or motor control components as needed.</p> <p>Reset circuit protector after corrections have been made.</p> |
| 1004 | Motion Controller Fault | <p>Motor speed controller “ready for operation” feedback signal has failed.</p> <p>Check the status display on the motor speed controller for fault indications. Status can only be displayed while power is applied. Cycling power to the controller will generally reset the fault condition. Determine the probable cause based on the controller fault status information.</p> <p>Correct the problem causing the fault or replace the controller if necessary.</p> |
| 1005 | Forward Contactor | <p>Auxiliary contact on the motor forward contactor did not close when the in/out positioner was commanded to move forward.</p> <p>Check forward contactor for proper operation. Repair or replace contactor as needed.</p> <p>Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed.</p> <p>This fault must be reset from the iControl alarm screen.</p> |
| 1006 | Reverse Contactor Fault | <p>Auxiliary contact on the motor reverse contactor did not close when the in/out positioner was commanded to move in reverse.</p> <p>Check reverse contactor for proper operation. Repair or replace contactor as needed.</p> <p>Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed.</p> <p>This fault must be reset from the iControl alarm screen.</p> <p>The in/out positioner or reciprocator position feedback encoder is not putting out pulses.</p> <p>NOTE: If an encoder fails, an in/out positioner will move to the reverse limit position. A reciprocator will stop.</p> <p>Check all encoder mechanical and electrical connections.</p> <p>Make sure the encoder is powered.</p> <p>Check pulse output from the encoder. Replace encoder if necessary.</p> <p>This fault must be reset from the iControl alarm screen.</p> |
| Continued... | | |

| Error Code | Message | Correction |
|--------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1007 1008 | Forward or Reverse End-of-Travel Limit fault | <p>In/out positioner color change cycle takes too long (Automatic color change system).>>> 24 <<<</p> <p>During an automatic color change cycle the positioner is commanded to make both forward and reverse moves.</p> <p>This fault occurs if the positioner did not reach the limit in a set amount of time (20 seconds for forward and 75 seconds for reverse).</p> <p>For a 1007 Forward fault:</p> <p>Check for an obstruction to forward motion.</p> <p>Check the operation of the forward limit switch.</p> <p>For a 1008 Reverse fault:</p> <p>Check for an obstruction to reverse motion.</p> <p>Check the operation of the reverse limit switch.</p> <p>If there is no obstruction and the reverse limit switch is good, increase the motion speed slightly.</p> |
| 1112 | Positioner not in ready state for color change Positioner code: 1112 | <p>In/out positioner not in Manual or Auto mode.</p> <p>Color change cycle cannot start unless in/out positioner is in Manual or Auto mode. Set in/out positioner mode to Manual or Auto.</p> |
| 3100 | Positioner Watchdog fault | <p>The positioner controller did not respond with a watchdog signal in 1 second.</p> <p>Check the Ethernet cable connections and the positioner controller.</p> |
| 4109 | Clean cycle aborted Arch clean operation waiting on Park release (Euro color change only) | <p>During a SpeedKing booth cleaning cycle, an in/out positioner has moved off its reverse limit switch or the limit switch has failed.</p> <p>All in/out positioner reverse limit switches must be engaged for iControl system to send "OK for Cleaning Arch" signal.</p> <p>Check in/out positioners for position, check limit switches and replace failed switch.</p> |
| 4110 | Clean cycle aborted by user action – Park release detected (Euro color change only) | <p>Park button touched causing color change cycle to abort.</p> <p>Touching the Park button to abort the color change cycle is a normal function. If the button was mistakenly touched before the cycle ended, the cycle must be restarted from the beginning.</p> |
| 4111 | Clean cycle aborted detected machine lockout/watchdog fault (Euro color change only) | <p>Communication with in/out positioner or reciprocator controller lost during color change cycle.</p> <p>Check the iControl alarm log for Watchdog or TCP/IP faults. Refer to Remote I/O Network Troubleshooting on page 4-15.</p> |

Other In/Out Positioner Troubleshooting

Table 4-8 Other In/Out Positioner Troubleshooting

| Problem | Cause | Correction |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No movement from in/out positioner in response to move command | A fault has occurred preventing operation. | Check the iControl alarm log. Identify the fault and review the fault troubleshooting information in this table. |
| | Controller configuration jumpers not in place. | Refer to in/out positioner or in/out positioner/reciprocator control panel drawings in Section 7 for function identification and jumper placement instructions. |
| | Configuration lockout applied to in/out positioner. | Check the In/Out Positioner control screen for the lockout indicator. Lockout is applied from the Configuration screens. |
| | iControl lockout applied to guns, in/out positioners, and reciprocators. | This is a normal condition unless a failure has occurred. Refer to <i>Photoeye, Encoder, and Interlock Troubleshooting</i> in this section. |
| | Remote disable applied to in/out positioner controller. No status display on iControl screens. | If Nordson USA ColorMax system: Disable action is applied by a remote system control panel keyswitch. In the Disable position, the keyswitch opens the disable input circuit at the in/out positioner controller. No corrective action is required unless the keyswitch Normal position does not allow motion. Refer to your system drawings for circuit details. If not Nordson USA ColorMax system: Apply jumper to force On the remote disable input. Refer to system drawings for jumper application. |
| No in/out positioner response when Auto mode selected | A fault has occurred preventing Auto operation. | Check iControl alarm screen. Identify the fault and correct. Review the related faults and corrections listed in this table. |
| | iControl in/out positioner configuration settings have not been completed. | Refer to Network Configuration and In/Out Positioner Configuration in the iControl Operator Interface manual. Make sure all required settings have been made and are correct. Refer to the in/out positioner/reciprocator control panel drawings and make sure all connections have been made correctly. |

Continued...

| Problem | Cause | Correction |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Auto mode is selected, homing has completed, but no auto positioning response from in/out positioner | Auto hold action has been applied to the in/out positioner. | <p>The in/out positioner is forced to the Retract position (refer to in/out positioner configuration setting).</p> <p>This is a normal and temporary occurrence when the iControl system does not know the status of the parts on the conveyor between the in/out positioner scanner and the in/out positioner. This condition occurs when the iControl console is powered up or rebooted and part tracking (shift register) information is lost.</p> <p>Auto positioning will commence when parts identified by the in/out positioner scanners arrive at the in/out positioner.</p> <p>Manual positioning is allowed during this period.</p> |
| | Booth interlock has opened (booth exhaust fan shut down). | <p>The booth exhaust fan has been turned off. The in/out positioner moves to the Park position (refer to in/out positioner configuration settings) if the Auto mode is selected.</p> <p>The in/out positioners can be operated manually while the booth fan is off.</p> |
| | In/Out Positioner scanner not responding to parts passing by on the conveyor. | <p>Conveyor encoder not sending pulses to the iControl system. Refer to <i>Photoeye, Encoder, and Conveyor Interlock Troubleshooting</i> on page 4-32.</p> <p>In/Out Positioner scanners not detecting parts:</p> <p>Check scanner input values on the Input Status screen. Refer to the <i>Monitoring Operation</i> section of the iControl Operator Interface manual.</p> <p>Check for scanner remote node communication failure on the Network Node Status screen and Node Configuration screens. Refer to <i>Remote I/O Network Troubleshooting</i> in this section.</p> <p>Check for electrical power at the scanner controllers.</p> <p>Check for a voltage signal, 0–10 Vdc = length of scanner (0 = maximum), from the scanner controller to the analog input module. Refer to the In/Out Positioner Scanner Junction Box drawings in this manual.</p> <p>If a voltage signal is read at the analog input module, and there is no problem with the Ethernet network connections to the controller node, then replace the analog input module.</p> |
| | In/Out Positioner preset set to Fixed. | Normal operating scenario. Position change will only occur when a new part appears at the in/out positioner. |

Continued...

| Problem | Cause | Correction |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Auto mode is selected, in/out positioner stays at the reverse limit position | Refer to Problem "Auto mode is selected, homing has completed, but no auto positioning response from in/out positioner." | |
| | Park/Clean and Retract position values set too high. Set the Park/Cle | an and Retract position values to less than reverse limit switch position value. If the values are greater, the in/out positioner will stop at the reverse limit switch and generate a fault condition during normal operation. NOTE: If the in/out positioner is an analog version, then the Reverse Limit value must equal the position at the reverse limit switch. |
| In/Out Positioner "jumps" back to a stop after moving to a new position | In/Out Positioner Hysteresis value too small. | Open In/Out Positioner Configuration screen and increase the Hysteresis value. The hysteresis value is the allowable over- or under-shoot distance from the target position. If the in/out positioner is within this distance of the desired position when it stops, the iControl system will not move it again to the target position. If the value is not large enough, the in/out positioner will over- or under-shoot its destination and then "jump" back to it (called hunting). A typical setting is 0.5 – 0.7 inches depending on the in/out positioner speed setting. |
| In/Out Positioner actual travel distance does not match value shown on iControl screens | In/Out Positioner position calibration not completed, or in/out positioner forward or reverse limit switch moved since last position calibration. | In/Out Positioner calibration involves moving the in/out positioner to a stop at the forward limit switch and then within 60 seconds moving it to the reverse limit switch. This sets zero at the forward limit switch and a reverse limit reference at the reverse limit switch. Calibration is performed during in/out positioner configuration, but can be performed at any time while in Manual mode. If the physical position of either limit switch has been changed, then positioning will be incorrect. You must recalibrate the in/out positioner if you move the limit switches. NOTE: The first time Auto mode is selected after in/out positioner power up, the in/out positioner moves to the reverse limit switch (home) and acquires a reverse reference value. This value is used to reset the in/out positioner position for Auto operations. |

Continued...

| Problem | Cause | Correction |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| In/Out Positioner actual travel distance does not match value shown on iControl screens (continued) | Incorrect encoder resolution entered on in/out positioner configuration screen. | <p>NOTE: Encoder resolution can only be entered or changed by a Nordson representative.</p> <p>Verify encoder resolution (number of pulses output for one inch of travel) and enter that value on the in/out positioner configuration screen.</p> <p>If the number is not know and cannot be mechanically calculated, then a trial and error method can be attempted. Perform this procedure from the in/out positioner configuration screen:</p> <ol style="list-style-type: none"> 1. Manually move the in/out positioner to the forward limit (zero position). 2. Reverse the in/out positioner slightly off the limit, record the displayed position value, and apply reference marks to the in/out positioner and base. 3. Manually move the in/out positioner in reverse, almost but not all the way to the reverse limit (the greater the distance the more accurate the calculated resolution will be). 4. Use your reference marks to measure the distance moved and compare the measured distance to the displayed position value. 5. The ratio of these two values is used to calculate a new encoder resolution. If the displayed position value is greater than the measured distance, then increase the encoder resolution. If the displayed position value is less than the measure value, then decrease the resolution. |
| | Mechanical failure in connection of in/out positioner encoder to machine motion. | Check the mechanical components and connections linking the encoder rotation to the movement of the in/out positioner. |

Reciprocator Troubleshooting

Use the fault messages on the Alarm screen with this table to diagnose and correct reciprocator problems. Refer to Remote I/O Network Troubleshooting on page 4-15 if the fault messages indicate a communications problem (Watchdog fault or TCP/IP communications fault).

Each fault message displayed on the iControl screen is accompanied by a device and number identifier. The identifier indicates the faulted machine (for example, IN/OUT Positioner #1, Reciprocator #2). When the fault condition is corrected or cleared, the fault message will indicate a returned-to-normal status.

For all in/out positioner faults, the alarm relay contacts open to signal an alarm condition. You can use the alarm relay to activate an external alarm. Refer to Console Power Cable Connections in the Installation section for more information.

Reciprocator Error Code Troubleshooting

Table 4-9 Reciprocator Error Code Troubleshooting>>> 25 <<<

| Error Code | Message | Correction |
|------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001 | E-Stop Open | In/out positioner or reciprocator E-Stop button pressed. Determine why E-Stop button was pressed and correct if necessary. Reset E-stop button when clear to do so. |
| 2002 | Encoder Failure Fault | <p>In/out positioner or reciprocator not moving. Mechanical, motor, or motor controller failure.</p> <p>Change in/out positioner or reciprocator operating mode to Manual and check for proper forward and reverse (up and down) motion.</p> <p>If only one direction of movement, check motor control circuits.</p> <p>If no motion, check the following:</p> <p>Check the positioner carriage to make sure it moves properly. Make sure that</p> <ul style="list-style-type: none"> the anti-tip device is adjusted properly a carriage wheel bearing has not failed no obstructions are preventing motion. <p>Check the pulleys, belts, or other mechanical link connecting the gear reducer to the gun moving carriage.</p> <p>If the gear reducer is not rotating but the motor is, replace the reducer.</p> <p>If the drive motor is not rotating, check the motor circuit protection, motor wiring, motor controller, and motor control circuits.</p> <p>This fault must be reset from the iControl alarm screen.</p> |

Continued...

| Error Code | Message | Correction |
|------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2003 | Motor Protector | <p>Circuit protector limiting current to the in/out positioner or reciprocator motor has failed.>>> 26 <<<</p> <p>Check mechanical components of in/out positioner for proper operation. Lubricate, repair, or replace components as needed.</p> <p>Check motor electrical circuit between protector and motor. Repair or replace wiring, terminals, or motor control components as needed.</p> <p>Reset circuit protector after corrections have been made.</p> |
| 2004 | Motion Controller Fault | <p>Motor speed controller “ready for operation” feedback signal has failed.</p> <p>Check the status display on the motor speed controller for fault indications. Status can only be displayed while power is applied. Cycling power to the controller will generally reset the fault condition. Determine the probable cause based on the controller fault status information.</p> <p>Correct the problem causing the fault or replace the controller if necessary.</p> |
| 2005 | Forward Contactor | <p>Auxiliary contact on the motor forward contactor did not close when the in/out positioner was commanded to move forward.</p> <p>Check forward contactor for proper operation. Repair or replace contactor as needed.</p> <p>Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed.</p> <p>This fault must be reset from the iControl alarm screen.</p> |
| 2006 | Reverse Contactor Fault | <p>Auxiliary contact on the motor reverse contactor did not close when the in/out positioner was commanded to move in reverse.</p> <p>Check reverse contactor for proper operation. Repair or replace contactor as needed.</p> <p>Check control circuit and devices that energize the contactor for proper operation. Repair or replace components as needed.</p> <p>This fault must be reset from the iControl alarm screen.</p> |
| | | <p>The in/out positioner or reciprocator position feedback encoder is not putting out pulses.</p> <p>NOTE: If an encoder fails, an in/out positioner will move to the reverse limit position. A reciprocator will stop.</p> <p>Check all encoder mechanical and electrical connections. Make sure the encoder is powered.</p> <p>Check pulse output from the encoder. Replace encoder if necessary.</p> <p>This fault must be reset from the iControl alarm screen.</p> |

Continued...

| Error Code | Message | Correction |
|--------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2007 2008 | Forward or Reverse End-of-Travel Limit fault | <p>Auto mode is selected and the reciprocator has engaged the forward (upper) or reverse (lower) end-of-travel limit sensor. Select Manual mode and move the reciprocator off the limit, then re-select Auto mode.>>> 27 <<<</p> <p>Check the configured soft top and bottom limits. Make sure they do not allow travel to the limit sensors.</p> <p>Adjust the configured reciprocator Turn-Around Offset (Nordson CSR only) to ensure that the limit sensors are not engaged.</p> <p>Check reciprocator encoder wiring. If signals switched position tracking will be reversed. Typically only seen on initial startup or if encoder is replaced.</p> <p>Reciprocator encoder has failed. Refer to Encoder Failure fault.</p> |
| | | <p>Gun carriage has fallen to the reverse limit as a result of a mechanical failure.</p> <p>Check belts, pulleys, bearings, etc. for proper operation. Refer to reciprocator manual.</p> <p>This fault must be reset from the iControl Alarm screen.</p> |
| | | <p>Gun carriage has slowly drifted or was moved to the top or bottom of stroke.</p> <p>Incorrect counterweight to neutralize the weight of the guns and gun carriage. Refer to reciprocator manual.</p> <p>This fault must be reset from the iControl Alarm screen.</p> |
| 2101 | Part size less than minimum | <p>Default or preset settings define a stroke length less than the minimum 4 in.</p> <p>Change default or preset settings, or if parts are small consider turning off reciprocators for batch.</p> |
| 2102 | Lead gun not defined – using gun 1 | <p>Lead gun number not entered in reciprocator configuration. Enter number for lead gun in reciprocator configuration.</p> |
| 2103 | Trail gun not defined – using gun 1 | <p>Trail gun number not entered in reciprocator configuration. Enter number for trail gun in reciprocator configuration.</p> |
| 2104 | Trail gun less than lead – trail = lead | <p>Lead and trail gun numbers not entered correctly in reciprocator configuration.</p> <p>Correct gun number entries in reciprocator configuration. Lead gun number must be lower than trail gun number.</p> |
| 2105 | Pattern width not set – using 12 inches | <p>No value for pattern width entered in reciprocator configuration.</p> <p>Enter value for pattern width in reciprocator configuration.</p> |
| 2106 | Vertical scanner not configured – reciprocator mode 1 invalid | <p>Reciprocator set for variable stroke mode, no part size data available.</p> <p>A part size, as seen by a vertical scanner or customer PLC, is required for variable mode. If no part size data is available, set reciprocator to a fixed mode.</p> |
| Continued... | | |

| Error Code | Message | Correction |
|------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2107 | Speed calculated less than minimum | Default or preset settings for variable mode resulting in speed less than minimum.>>> 28 <<< Minimum speed is 15 ft/min. Change default or preset settings. Part may be too small to use variable mode, change to a fixed mode. |
| 2108 | Speed calculated greater than maximum | Default or preset settings for variable mode or fixed with conveyor synchronization resulting in speed faster than maximum. Change the default or preset settings or reduce the conveyor speed. |
| 1112 | Positioner not in ready state for color change | In/out positioner not in Manual or Auto mode. Color change cycle cannot start unless in/out positioner is in Manual or Auto mode. Set in/out positioner mode to Manual or Auto. |
| 2113 | Reciprocator not in ready state for color change | Reciprocator not in Auto mode. Color change cycle cannot start unless reciprocator is in Auto mode. Set reciprocator mode to Auto. |
| 3200 | Reciprocator Watchdog fault | The reciprocator controller did not respond with a watchdog signal in 1 second. Check the Ethernet cable connections and the reciprocator controller. |

Other Reciprocator Troubleshooting

Table 4-10 Other Reciprocator Troubleshooting

| Problem | Cause | Correction |
|-----------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| No movement from reciprocator in response to move command | A fault has occurred preventing operation. | Check the iControl alarm log. Identify the fault and review the fault troubleshooting information in this table. |
| | Controller configuration jumpers not in place. | Refer to in/out positioner/reciprocator control panel drawings in Section 7 for function identification and jumper placement instructions. |
| | Configuration lockout applied to reciprocator. | Check the Reciprocator control screen for the lockout indicator. Lockout is applied from the Configuration screens. |
| | iControl lockout applied to guns, in/out positioners, and reciprocators. | This is a normal condition unless a failure has occurred. Refer to <i>Photoeye, Encoder, and Interlock Troubleshooting</i> in this section. |
| Continued... | | |

| Problem | Cause | Correction |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No movement from reciprocator in response to move command <i>(continued)</i> | Remote disable applied to reciprocator controller. No status display on iControl screens. | <p>If Nordson USA ColorMax system:</p> <p>Disable action is applied by a remote system control panel keyswitch. In the Disable position, the keyswitch opens the disable input circuit at the controller.</p> <p>No corrective action is required unless the keyswitch Normal position does not allow motion. Refer to your system drawings for circuit details.</p> <p>If not Nordson USA ColorMax system:</p> <p>Apply jumper to force On the remote disable input. Refer to system drawings for jumper application.</p> |
| No reciprocator response when Auto mode selected | A fault has occurred preventing Auto operation. | <p>Check iControl alarm screen.</p> <p>Identify the fault and correct. Review the related faults and corrections listed in this table.</p> |
| | iControl reciprocator configuration settings have not been completed. | <p>Refer to <i>Network Configuration and Reciprocator Configuration</i> in the iControl Operator Interface manual. Make sure all required settings have been made and are correct.</p> <p>Refer to the In/Out Positioner/Reciprocator Control Panel drawings in Section 7 of this manual and make sure all connections have been made correctly.</p> |
| Reciprocator changes direction before or after the programmed turn-around position in Auto mode | Turn-around offset not set correctly. | <p>An error close to $\pm 1/2$ in. of the set turn-around position is normal. Before making adjustments to the offset setting, make sure the encoder resolution is correct. Refer to <i>Reciprocator Configuration</i> in the iControl Operator Interface manual.</p> |
| | Incorrect reciprocator encoder resolution entered. | <p>The accuracy of the displayed position versus the actual position of the reciprocator is determined by the configured encoder resolution. Check the encoder resolution value.</p> |
| Reciprocator does not display 0.0 position after the homing process | Reciprocator has overtraveled the position slightly before coming to a stop | <p>This is normal. The position displayed after homing is the actual position. During homing, the 0.0 position is set at the forward limit, then the reciprocator moves down 1 inch before stopping. The stop action produces the overtravel.</p> |
| Continued... | | |

| Problem | Cause | Correction |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reciprocator measured travel position does not match the value shown on the reciprocator control panel or configuration screen | Reciprocator not homed. | Touch the Home button and wait for the homing sequence to finish, then check the position accuracy. The displayed position will not be correct until the reciprocator is homed. |
| | Incorrect reciprocator encoder value entered. | The accuracy of the displayed position versus the actual position of the reciprocator is determined by the configured encoder resolution. Check the encoder resolution value. |
| | Belt drive sprocket slipping. | Make sure the drive belt sprocket is securely connected to the gear reducer output shaft. |
| Reciprocator does not move in response to move command | Refer to condition "No movement from reciprocator in response to move command." | |
| | Mechanical failure, drive belt not engaging drive sprocket, or drive sprocket slipping. | The position value changes but the reciprocator does not move. This can occur because the encoder is connected directly to the gear reducer output shaft. Check the drive belt and sprocket. |
| | Incorrect reciprocator speed controller parameters. | Speed controller parameters must be set to specified values in order to respond correctly to signals from reciprocator controller. Refer to the In/Out Positioner/Reciprocator Control Panel drawings in Section 7 of this manual. |
| No reciprocator response when Auto mode selected | Refer to condition "No reciprocator response when Auto mode selected." | |
| | Auto cycle delay in progress | A 5 second delay occurs when Auto mode is selected. During the delay a warning beeper should sound. |
| | An end-of-travel limit switch is engaged. | Check the iControl Alarm log. Identify the fault and review the fault troubleshooting information. |
| | Invalid reciprocator stroke settings. | Speed controller parameters must be set to accept commands from the reciprocator controller. Refer to the In/Out Positioner/Reciprocator Control Panel drawings in Section 7 of this manual. |
| Reciprocator "jumps" back to a stop after moving to a new position | Reciprocator Hysteresis value too small. | <p>Open Reciprocator Configuration screen and increase the Hysteresis value.</p> <p>The hysteresis value is the allowable over- or under-shoot distance from the target position. If the reciprocator is within this distance of the desired position when it stops, the iControl system will not move it again to the target position. If the value is not large enough, the reciprocator will over- or under-shoot its destination and then "jump" back to it (called hunting).</p> <p>A typical setting is 0.5 – 0.7 inches depending on the reciprocator speed setting.</p> |

Other Fault Messages and Conditions

Table 4-11 Other Fault Messages and Conditions

| Message or Condition | Cause/Correction |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Message: Too many (few) control nodes found | The number of gun cards/iFlow modules does not match the number of guns setting in Guns Configuration screen (System Configuration). This could be a normal condition if you have an odd number of guns in your system. The red Fault LED on the gun card will light if two guns are not connected to the card. |
| Message: Failure reading database | No data or configuration displays on screens. User data card missing, defective, or wrong size. Replace the card. Compact Flash adapter failure. Replace the adapter. |
| Condition: iControl screen partially boots up. Screen is blank except for possible text display, or screen displays "Hit ESC for .altboot..." | Program card is missing, blank, or defective. Replace the card. Program card in wrong adapter slot. Insert the program card in the outer slot. Compact Flash adapter failure. Replace the adapter. No power to Compact Flash adapter. Check the power cable and connection to the adapter. Check the ribbon cable connections to the Compact Flash adapter and PC. Replace the ribbon cable if necessary. (Standard 40-pin IDE cable, not available from Nordson.) |
| Condition: Pickoff value is reset to smaller number after entry | The maximum pickoff length is 4096 inches (104038.4 mm). With the keypad you can enter a number larger than the maximum, but when you save your entry the value will be automatically reduced to the maximum value. |
| Condition: Inconsistent lead and lag timing for auto gun triggering or moving | Conveyor encoder pulse rate is too fast. Maximum is 10 Hz (10 pulses/second). Some pulses are not being detected. Reduce the conveyor speed or change the encoder-to-conveyor linkage to reduce the pulse frequency. |
| Condition: Lockout message does not display when keyswitch turned to lockout position, or lockout cannot be canceled by turning keyswitch to another position | Booth exhaust fan is off (turning off switched power to the console), or remote lockout is on. If the exhaust fan is turned off before turning the switch to Lockout, then lockout cannot be activated. If the fan is turned off after the switch is turned to Lockout, then lockout cannot be canceled. Turn fan on to correct. If the remote lockout is on, turn it off. Remote lockout is activated by a customer-supplied switching device connected to the remote lockout relay in the console. |
| Condition: iControl screen is locked up (no response) | Cycle console power. If the condition persists, the program card is corrupted. Obtain and install another program card. Refer to Touch Screen Calibration when installing new program cards. |
| Condition: Air flow when gun is not triggered on | iFlow module requires re-zeroing. Re-zero the iFlow module as described on page 4-12. iFlow module proportional valve or solenoid valve stuck open. Refer to the <i>Repair</i> section for instructions on cleaning the proportional valves. Solenoid valves must be replaced if they do not close. |

Photoeye, Encoder, and Interlock Troubleshooting

Use the I/O board LEDs and the relay LEDs in the master console to troubleshoot problems with the photoeye, encoder, interlock, and alarm circuits. >>> 29 <<<

Table 4-12 Photoeye, Encoder, and Interlock Troubleshooting

| Inputs | I/O Board Terminals | Troubleshooting |
|-------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Zone Photoeyes | 1 – 8 | Photoeyes are set for breaklight. When a part passes in front of the zone photoeyes, the LEDs for the zone photoeyes should light. If they do not, check the photoeye wiring and photoeyes. |
| Flag Photoeyes or scanners or Inputs from customer Part ID system | 9 –16 | Photoeyes and scanners are set for breaklight. When a flag passes in front of the photoeyes, the LEDs for those photoeyes blocked by the flag, or the LEDs receiving a signal from the customer part ID system should light. If they do not check the wiring and photoeyes or customer part ID system. |
| Encoder | 20 | The LED should flash at the same rate as the encoder signal. If it is not flashing when the conveyor is moving check the encoder wiring and encoder. |
| Conveyor Interlock | 24 | The LED should light as long as the conveyor is on or the keyswitch is in the bypass position. If it is not on check the conveyor interlock wiring. Without this signal the spray guns will not be triggered. |
| Relays (DIN rail) | – | The conveyor interlock relay LED lights when the conveyor is running. The remote lockout relay LED is lit as long as it is receiving a signal (lockout on). The alarm relay LED stays lit until an alarm occurs, then goes out. |
| All | 1–24 | <p>Input LEDs should indicate as described above. If none of the LEDs will turn on, then check the following screens:</p> <p>Zone and Part ID Inputs: Open the Input Status screen. Inputs should display as lighted indicators.</p> <p>Encoder: On the Main screen, if the encoder is providing a signal then the conveyor speed should be greater than zero.</p> <p>Conveyor Input: On the Main screen, if the conveyor is running then the conveyor indicator should be green.</p> <p>If the input indicators on the Main and Input Status screens are lit but the I/O board LEDs are not, then:</p> <p>Check the dipswitch and jumper settings on the PC104 I/O board (see Figure 7-4 for the settings). If settings are correct, replace the PC104 I/O board, ribbon cable, and I/O board. A new cable is shipped with the I/O board.</p> <p>WARNING: Always turn console power off before changing jumper and dipswitch settings on circuit boards. If ribbon cable is not keyed, make sure the colored trace in the ribbon cable is aligned with pin 1 at both connectors.</p> <p>If the conveyor interlock LED (24) on the I/O board is operating correctly and all or some of LEDs 1–20 are responding erratically, then check the I/O board inputs common voltage. For sinking inputs, +24 Vdc is applied to all HI terminals on the board as inputs common.</p> |

Remote Node (FieldBus Controller/Coupler) Troubleshooting

Use the following tables and the LEDs on the FieldBus devices in the in/out positioner scanner junction box and in/out positioner / reciprocator control panels for assistance in troubleshooting them. Unless instructed otherwise, contact Nordson Finishing Technical Support for assistance.>>> 30 <<<

FieldBus Status

Table 4-13 FieldBus Controller Status LEDs

| LED | Meaning | Troubleshooting |
|----------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ON | | |
| Green | Fieldbus initialization is correct. | |
| Off | Fieldbus initialization is not correct, no function or self test. | Check the supply voltage (24V and 0V), check the IP configuration. |
| LINK | | |
| Green | Link to the remote i/o network exists. | |
| Off | No link to the remote i/o network. | Check Ethernet connections and cables. |
| TxD/RxD | | |
| Green | Data exchange taking place. | |
| Off | No data exchange. | Make sure the iControl console is powered on. Make sure the remote node has been configured by checking the Network Status screen and Node Configuration screen. Check the iControl Alarm screen for remove node fault messages. |
| ERROR | | |
| Red | Error on the fieldbus. | |
| Off | No error, normal operation. | |

Node Status

Table 4-14 FieldBus Controller Node Status LEDs

| LED | Meaning | Troubleshooting |
|------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| I/O | | |
| Green | Fieldbus device operating normally. | |
| Red | During startup: Internal bus being initialized, LED flashes fast for 1–2 seconds. | |
| Red | After startup: Three consecutive flashing sequences with pauses between each indicate errors. | Refer to the fault codes, arguments, and description in Table 4-16, I/O Errors. |
| Orange | Failure of input or output module connected to controller. | Check I/O modules, replace if necessary. |

Voltage LEDs

The two green LEDs in the FieldBus supply section display the supply voltage. The (A) LED indicates the 24 V supply; the (B) LED indicates the supply to the field side (power jumper contacts).

Table 4-15 FieldBus Controller Voltage LEDs

| LED | Meaning | Troubleshooting |
|----------|-----------------------------------------------------|-----------------------------------------|
| A | | |
| Green | Operating voltage exists. | |
| Off | No operating voltage. | Check the supply voltage (24 V and 0 V) |
| B | | |
| Green | Operating voltage for power jumper contacts exists. | |
| Off | No operating voltage for power jumper contacts. | Check the supply voltage (24 V and 0 V) |

I/O Errors

If a fault is detected, the I/O LED blinks in three consecutive flash sequences: first a series of short flashes, then a pause, then the error code number, another pause, then the error code argument.

Table 4-16 FieldBus Controller I/O Fault LEDs

| Fault Argument | Fault Description |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Fault Code 1: Hardware and configuration fault | |
| 0 | EEPROM check sum fault/check sum fault in the parameter area of the flash memory. |
| 1 | Overflow of the internal buffer memory for the inline code. |
| 2 | Unknown data type. |
| 3 | Module type of the flash program memory could not be determined/is incorrect. |
| 4 | Fault when writing in the flash memory. |
| 5 | Fault when deleting in the flash memory. |
| 6 | Changed I/O module configuration determined after autoreset. |
| Fault Code 2: Fault in the programmed configuration | |
| 0 | Incorrect table entry. |
| Fault Code 3: Internal bus command fault | |
| 0 | No error argument. |
| Fault Code 4: Internal bus data fault | |
| 0 | Data fault on internal bus or internal bus interruption on coupler. |
| n* (n>0) | Internal bus interrupted after I/O module n. |
| Fault Code 5: Fault during register communication | |
| n* | Internal bus fault during register communication after I/O module n. |
| Fault Code 6: FieldBus specific error | |
| 1 | No reply from the BootP server. |
| 2 | Ethernet controller not recognized. |
| 3 | Invalid MAC ID. |
| 4 | TCP/IP initialization error. |
| Fault Code 7: I/O module not supported | |
| n* | I/O module at position n is not supported. |
| Fault Code 8: Not used | |
| Fault Code 9: CPU-TRAP error | |
| 1 | Illegal opcode. |
| 2 | Stack overflow. |
| 3 | Stack underflow. |
| 4 | NMI |

Touch Screen Troubleshooting

Touch Screen Calibration

The touch screen is calibrated at the factory. If you change a program card, or the iControl PC, or have problems touching screen components accurately, you will have to recalibrate the screen.

The touch screen calibration values are stored on the program card. If you install a program card that has not been used before, there will be no calibration file on the card. The system will automatically start the calibration procedure.

NOTE: If you install a program card that was previously used on another iControl console, you **MUST** perform the *Calibration with a Mouse* procedure on the following page to calibrate the touch screen.

Normal Calibration

You can calibrate the touch screen at any time. To start a normal calibration, start the Program Shutdown procedure. When the operating system shutdown prompt appears on the screen, touch the Cancel button, then touch the CAL button.

Follow the calibration instructions on the screen exactly, using your finger to touch the targets. When you have completed the calibration procedure, touch the **iControl** button to start the iControl software.

Problems During Calibration

If you do not follow the calibration instructions exactly: You will not be able to touch the center **Completion** button and exit the calibration procedure. If this happens, stop and wait until the procedure times out. You should then be able to repeat the procedure and complete it correctly. When you have completed the calibration procedure, touch the **iControl** button to start the iControl software.

If console power is shut off during the calibration procedure: The calibration file on the program card will be corrupted. On power up, you will not be able to touch the CAL button to start the calibration procedure. If this happens, perform the *Calibration with a Mouse* procedure.

Calibration with a Mouse



WARNING: Do not spray powder while the console door is open. Shut off the booth exhaust fan to remove switched power from the console and prevent spray gun operation while performing this procedure. Failure to observe this warning could create a hazardous condition and could result in personal injury or property damage.

Use this procedure to recalibrate the touch screen if you cannot touch the CAL button or the buttons on the iControl screens, or if you install a program card previously used in another iControl console.

NOTE: You must shut off console power before connecting or disconnecting a mouse or keyboard from the iControl PC.

1. Turn off console power.
2. Open the iControl cabinet door and connect a mouse with a PS2 connector to the MOUSE port on left side of the iControl PC.
3. Turn on power and allow the operating system to load. The CAL button is displayed on the touch screen before the iControl software loads.
4. Use the mouse to move the cursor to the CAL button and click on it. The touch screen calibration procedure will start.

NOTE: If you miss the CAL button, allow the iControl software to load, then, if possible, open the System Configuration screen and touch the Program Shutdown button. When the operating system shutdown prompt appears on the screen, touch the Cancel button, then the CAL button. If you cannot touch any buttons on the screen, then you will have to cycle console power and try again (go back to Step 1).

5. Once the calibration procedure starts, **USE YOUR FINGER, NOT THE MOUSE**, to touch the calibration targets, following the instructions on the screen carefully. When you have completed the calibration procedure, touch the iControl button to start the iControl software.
6. Test the touch screen calibration, then perform a program shutdown, turn off console power, and disconnect the mouse. Close the iControl cabinet door before re-starting the system.

No Touch Screen Display

Check the following:

- Check the power LED on the front bezel below the screen. If LED is not lit then PC is not powered up.
- Make sure the console power switch is on.
- Open the console door and make sure the PC power switch is on.

Have an electrician check these:

- Console fuses on the DIN rail, at the incoming power terminals.
- Unswitched power connections to the fuse blocks.
- Power supply to the console.

Touch Screen Failure



WARNING: Do not spray powder with the iControl console door open unless the console opening, the door, and all externally connected devices are out of the hazardous area surrounding any opening of the spray booth. The hazardous area extends 3 feet outward from an opening and continues in a 3 foot arc from the edge of an opening. Failure to observe this warning could create a hazardous condition and could result in personal injury or property damage.

Screens Display, but Touch Function Does Not Work

If the mouse pointer on the screen does not move to wherever you touch the screen, nothing happens when you touch buttons, and the touch screen cannot be calibrated, then the touch screen has failed. You must replace the iControl PC.

Temporary Fix: Shut off console power and connect a mouse with a PS2 connector to the MOUSE port of the left side of the iControl PC. Turn on console power and allow the system to boot up. You should now be able to use the mouse to point and click on screen buttons and data fields. Replace the iControl PC as soon as possible.

No Display

If the PC has power but nothing displays on the screen, then the screen has failed. You must replace the iControl PC.

Temporary Fix: Shut off console power and connect a VGA monitor, keyboard, and mouse to the PC ports. Turn console power on. If the boot screens and iControl screens display on the VGA monitor, you can use the mouse to click on buttons and select fields and use the keyboard to enter and change values. Replace the iControl PC as soon as possible.

Rotary Knob Troubleshooting

If rotating the knob on the keypad panel does not change the selected data field value, the signal from the knob is not being received by the iControl PC. If this happens, check the wiring connections from the keypad panel to the iControl PC. If the connections are good, replace the keypad panel.



WARNING: Do not spray powder with the iControl console door open unless the console opening, the door, and all externally connected devices are out of the hazardous area surrounding any opening of the spray booth. The hazardous area extends 3 feet outward from an opening and continues in a 3 foot arc from the edge of an opening. Failure to observe this warning could create a hazardous condition and could result in personal injury or property damage.

Temporary Fix: Perform a program shutdown and turn off console power. Connect a standard PC keyboard with a PS2 connector to the KEYBOARD port on the left side of the iControl PC. Turn on power and use the numeric keys to enter values in selected data fields, or use the up and down arrow keys to change field values. Replace the keypad as soon as possible.

Obsolete

Testing Ethernet Cables

A typical Ethernet cable test device consists of two separate units: a main unit and a remote unit. Use the main unit alone to test patch cables and both units to test cables after pulling them through conduit and connecting them to the termination modules.

Patch cables: These are short network cables used within electrical panels to make connections between Fieldbus controllers or couplers and field-terminated cable runs. Patch cables are factory assembled with male RJ45 connectors at each end.

Cable runs: These are longer network cables that run through conduit to connect Fieldbus controllers or couplers to a common network interface device. Only one end of the cable has a male RJ45 connection. The other end must be field-terminated to a termination module.

Refer to *Ethernet Network Installation* in the *Installation* section for more information about Ethernet cables and installation.

Local Test – Patch Cables

1. Connect both male RJ45 connectors to the main unit.
2. Turn the unit on. A red LED will blink indicating a test in progress.
3. Watch the cable test LEDs. If all are green, then the cable is good. If one or more flash red, then the cable is faulty and must be replaced.

Remote Test – Cable Run

1. Connect one end of a previously tested patch cable into the termination module connected to the cable run. This provides you with two RJ45 male connectors on the cable run to connect to the test unit.
2. Plug the other end of the patch cable into the remote unit.
3. Plug the RJ45 male connector at the network interface end of the cable run into the main unit of the cable tester.
4. Turn the main unit on.
5. Watch the cable pair LEDs on the remote unit.
 - If all LEDs are green, then the cable run is good.
 - If one or more LEDs flash red, then either the termination module connections are miswired or incomplete, or the cable is faulty.

Make sure the cable connections to the termination module are correct. Check each connection. If you suspect a bad connection, you can pull the lead out of the module and punch it down again closer to the jacket.

If the termination module connections are good, then the cable is faulty and must be replaced.

Section 5

Repair



WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.



CAUTION: Do not turn off console power without first performing a program shutdown. Doing so could corrupt the iControl program and operating system on the program card. Refer to *Program Shutdown* in the *Configuration* section of the *iControl Operator Interface* manual for the shutdown procedure.



WARNING: Hazardous voltages exist within the iControl console. Unless power must be on to test circuits, always shut off and lock out power before opening the console to make repairs. All repairs should be made by a qualified electrician. Failure to observe this warning could result in personal injury or death.

Repair consists of removing malfunctioning components and replacing them with new ones. There are no components inside the cabinet that can be repaired by the customer except for the flow module.

Refer to the pneumatic and wiring diagrams in Section 7 for connections.



WARNING: Whenever replacing a component that interfaces with the exterior of the cabinet, such as an iFlow digital flow module, make sure that the dust-tight integrity of the cabinet is intact by installing the correct gaskets and seals. Failure to maintain the dust-tight integrity of the cabinet could invalidate agency approvals and create a hazardous condition.

Flow Module Repair

Repair of the flow module is limited to

- cleaning or replacing the proportional valve
- replacing the gun air solenoid valve

Field replacement of other parts is not possible, due to the need to calibrate the module at the factory using equipment not available to the field.



CAUTION: The module circuit cards are electrostatic sensitive devices (ESD). To prevent damage to the cards when handling them, wear a grounding wrist strap connected to the iControl enclosure or other ground. Handle the cards only by their edges.

Proportional Valve Cleaning

See Figure 5-1. A dirty air supply can cause the proportional valve (6) to malfunction. Follow these instructions to disassemble and clean the valve.

1. Disconnect the coil (3) wiring from the circuit board (1). Remove the nut (2) and coil from the proportional valve (6).
2. Remove the two long screws (4) to remove the proportional valve from the manifold.



CAUTION: The valve parts are very small, be careful not to lose any. Do not mix the springs from one valve with those from another. The valves are calibrated for different springs.

3. Remove the two short screws (5), then remove the valve stem (9) from the valve body (12).
4. Remove the valve cartridge (11) and spring (10) from the stem.
5. Clean the cartridge seat and seals, and the orifice in the valve body. Use low-pressure compressed air. Do not use sharp metal tools to clean the cartridge or valve body.
6. Install the spring and then the cartridge in the stem, with the plastic seat on the end of the cartridge facing out.
7. Make sure the O-rings furnished with the valve are in place on the bottom of the valve body.
8. Secure the valve body to the manifold with the long screws, making sure the arrow on the side of the body points toward the outlet fittings.
9. Install the coil over the valve stem, with the coil wiring pointing toward the circuit board. Secure the coil with the nut.
10. Connect the coil wiring to the circuit board.

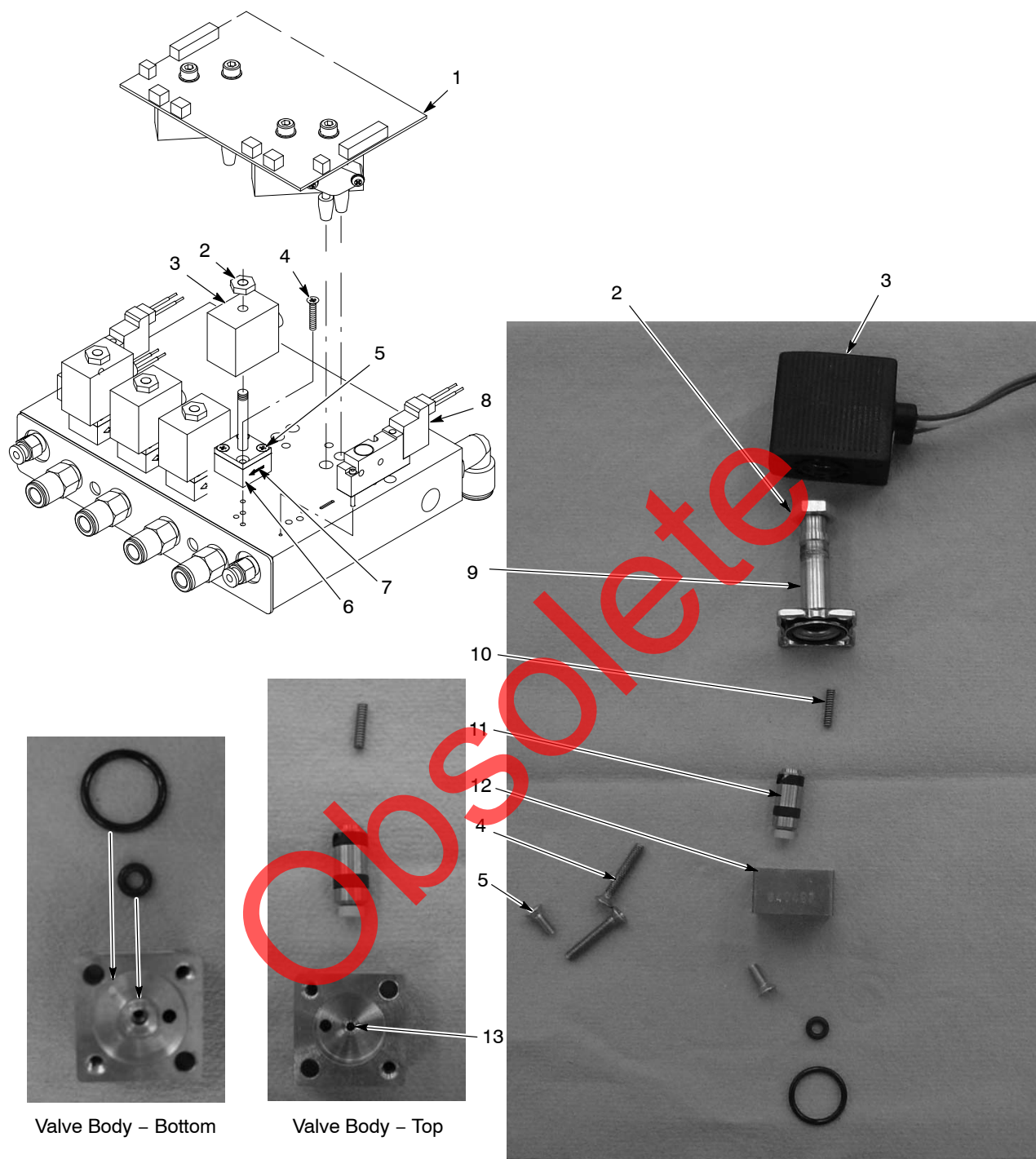


Figure 5-1 iFlow Module Proportional Valve Removal and Replacement

- | | | |
|----------------------------------------------|----------------------------------------|----------------|
| 1. Circuit board (shown removed for clarity) | 5. Short screws—valve stem to body (2) | 9. Stem |
| 2. Nut—coil to proportional valve (4) | 6. Proportional valve (4) | 10. Spring |
| 3. Coil—proportional valve (4) | 7. Direction of flow arrow | 11. Cartridge |
| 4. Long screws—valve to manifold (2) | 8. Gun air solenoid valve (2) | 12. Valve body |
| | | 13. Orifice |

Proportional Valve Replacement

If cleaning the proportional valve does not correct the flow problem then replace the valve. Remove the valve by performing steps 1 and 2 of *Proportional Valve Cleaning*.

Before installing a new valve, remove the protective cover from the bottom of the valve body. Be careful to not lose the O-rings under the cover.

Gun Air Solenoid Valve Replacement

See Figure 5-1. To remove the gun air solenoid valves (8), remove the two screws in the valve body and lift the valve off the manifold.

Make sure the O-rings furnished with the new valve are in place before installing the new valve on the manifold.

Gun Control Card Removal/Installation

Replacing a Gun Control Card



WARNING: Do not remove gun control cards from the card cage while they are powered. Either shut off console power or shut off the booth exhaust fan so that the interlock will remove power from the gun control cards. Failure to observe this warning could result in damage to the cards.



CAUTION: Do not turn off console power without first performing a program shutdown. Doing so could corrupt the iControl program and operating system on the program card. Refer to *Program Shutdown* in the *Configuration* section of the *iControl Operator Interface* manual for the shutdown procedure.



CAUTION: The gun control cards are electrostatic sensitive devices (ESD). To prevent damage to the cards when handling them, wear a grounding wrist strap connected to the iControl enclosure or other ground. Handle the cards only by their top and bottom edges.

See Figure 5-2. Gun control cards (2) are installed in the card cage from left to right. Each card controls two guns: the bottom receptacle is the odd gun number; the top receptacle is the even gun number.

To remove a card, disconnect the gun harness connectors (3 and 4), pull down the locking tab (5), then pull the card out of the card cage.

To install a new card, slide the card into the slots in the card cage and seat the card's finger board firmly into the connector slot on the backplane (6). Push the locking tab up to lock the card into the card cage. Connect the gun harness to the two receptacles on the card.

Adding Guns

If the console has an odd number of guns you can add another gun without adding another gun control card. If your console has an even number of guns less than 16, you can add more guns by installing a new gun control card in an unused slot. Refer to *System Upgrades* in the *Installation* section for more information on adding guns to an existing system.

For either scenario, you must open the Guns and Consoles configuration screen, increase the number of guns, and reboot the system before the new guns will be recognized.

NOTE: Cards are installed in the card cage from left to right. Guns are numbered from left to right and bottom to top.

Replacing A Card

If you are replacing an existing card, turn off the booth exhaust fan first, then replace the card. When you turn on the booth exhaust fan, the green watchdog LED should blink. Since the card ID has changed the red fault LED on the card will light and a fault message will appear on the Alarm screen. To reset the fault LED, open the Alarm screen and touch the Clear All Faults button.

2 4 6 8 10 12 14 16
1 3 5 7 9 11 13 15
Gun Order in Card Cage

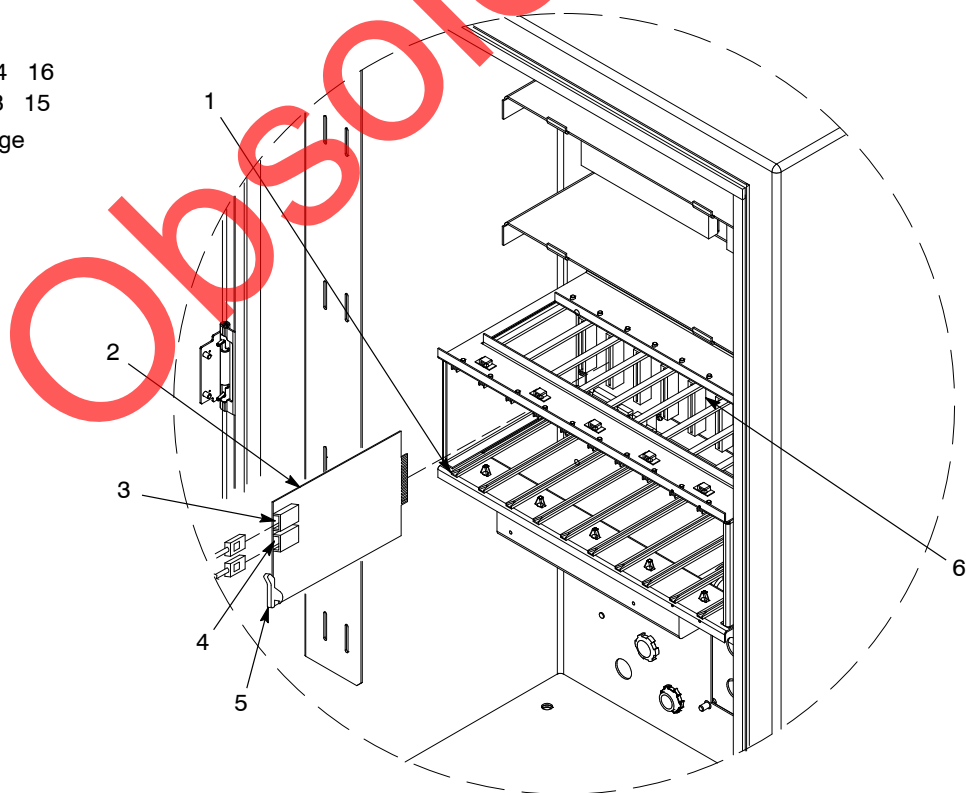


Figure 5-2 Gun Control Card Replacement

- | | | |
|-----------------------|--------------------|----------------|
| 1. Card cage (slot 1) | 3. Gun 2 connector | 5. Locking tab |
| 2. Gun control card | 4. Gun 1 connector | 6. Backplane |

Ribbon Cable Connections



CAUTION: Plugging in a ribbon cable the wrong way may damage the cable or the circuit boards when power is applied. Reversing the ribbon cable polarity of the cable from the iControl computer to the I/O card will cause catastrophic failure of the iControl unit. Make sure the cables are connected correctly.

The ribbon cables are keyed so that they can only be plugged in one way. If the cables are not keyed, replace them as soon as possible with keyed cables. I/O card replacements are shipped with a new cable.

The ribbon cables have a red or blue tracer that designates the pin1 side of the cable. Plug the cables into the circuit boards with the tracer aligned with pin 1 on the board. Pin 1 is designated by a 1 printed on the I/O board and a square on the computer.

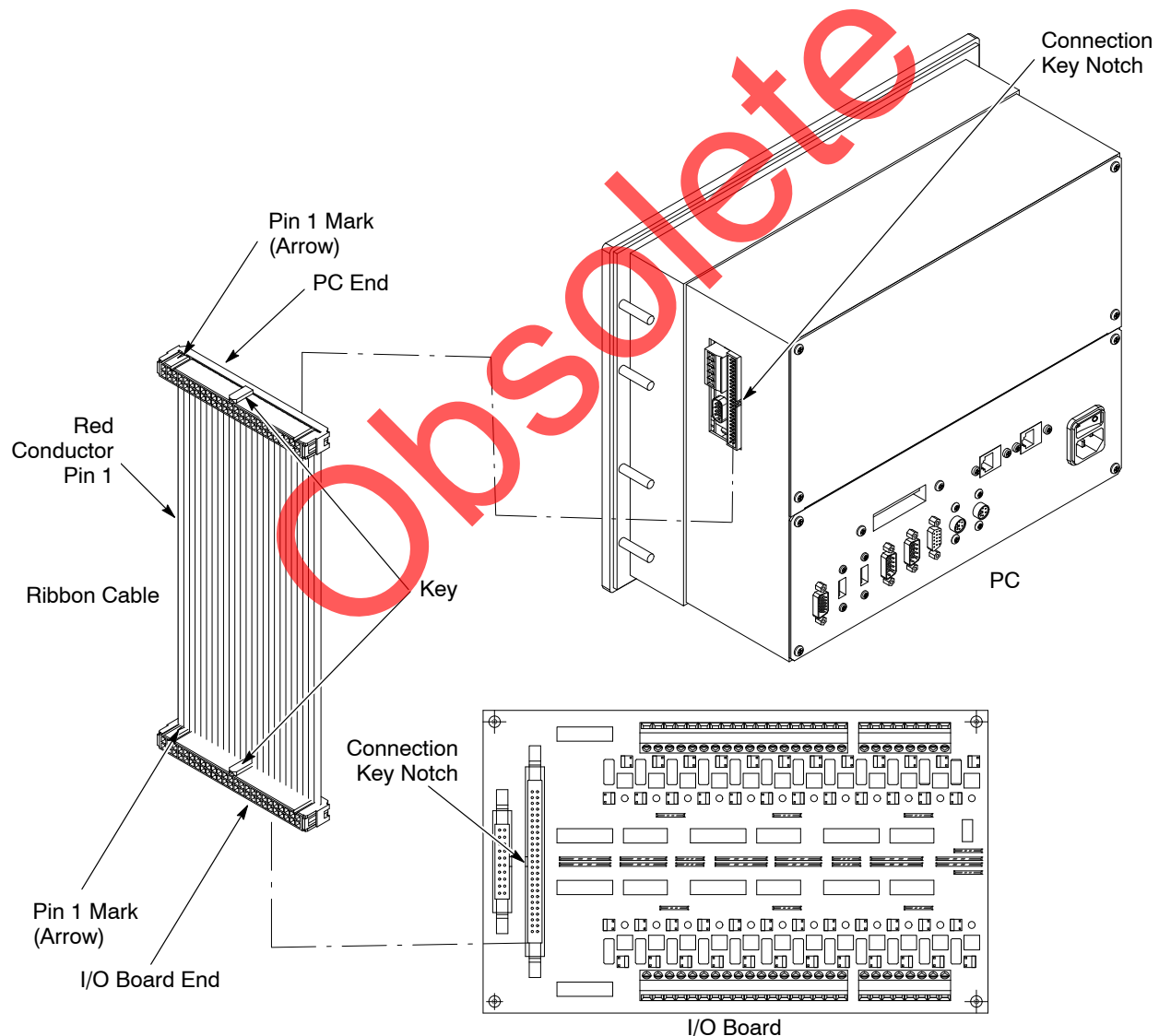


Figure 5-3 PC-I/O Board Ribbon Cable Connections

Section 6

Parts

Introduction

To order parts, call the Nordson Finishing Customer Support Center or your local Nordson representative.

Finishing Customer Support Center
Telephone: (800) 433-9319
Facsimile: (888) 229-4580
Email: finishing_csc@nordson.com

Obsolete

Consoles

| Part | Description | Note |
|------------------------|---------------------------------------------|------|
| Master Consoles | | |
| 1104834 | Controller, iControl, 4 gun, w/cpu | |
| 1104835 | Controller, iControl, 4 gun, w/cpu, w/ac | |
| 1104836 | Controller, iControl, 6 gun, w/cpu | |
| 1104837 | Controller, iControl, 6 gun, w/cpu, w/ac | |
| 1104838 | Controller, iControl, 8 gun, w/cpu | |
| 1104839 | Controller, iControl, 8 gun, w/cpu, w/ac | |
| 1104840 | Controller, iControl, 10 gun, w/cpu | |
| 1104841 | Controller, iControl, 10 gun, w/cpu, w/ac | |
| 1104842 | Controller, iControl, 12 gun, w/cpu | |
| 1104843 | Controller, iControl, 12 gun, w/cpu, w/ac | |
| 1104830 | Controller, iControl, 14 gun, w/cpu | |
| 1104831 | Controller, iControl, 14 gun, w/cpu, w/ac | |
| 1104832 | Controller, iControl, 16 gun, w/cpu | |
| 1104833 | Controller, iControl, 16 gun, w/cpu, w/ac | |
| Slave Consoles | | |
| 1100582 | Controller, iControl, 4 gun, w/o cpu | |
| 1100587 | Controller, iControl, 4 gun, w/o cpu, w/ac | |
| 1100589 | Controller, iControl, 6 gun, w/o cpu | |
| 1100611 | Controller, iControl, 6 gun, w/o cpu, w/ac | |
| 1100613 | Controller, iControl, 8 gun, w/o cpu | |
| 1100615 | Controller, iControl, 8 gun, w/o cpu, w/ac | |
| 1100617 | Controller, iControl, 10 gun, w/o cpu | |
| 1100619 | Controller, iControl, 10 gun, w/o cpu, w/ac | |
| 1100622 | Controller, iControl, 12 gun, w/o cpu | |
| 1100624 | Controller, iControl, 12 gun, w/o cpu, w/ac | |
| 1100626 | Controller, iControl, 14 gun, w/o cpu | |
| 1100628 | Controller, iControl, 14 gun, w/o cpu, w/ac | |
| 1100630 | Controller, iControl, 16 gun, w/o cpu | |
| 1100632 | Controller, iControl, 16 gun, w/o cpu, w/ac | |

Console Parts

Figures 6-1 through 6-6 show the replaceable parts for both master and slave consoles. Contact your Nordson representative or Nordson Customer Support for help in obtaining unlisted parts.

Refer to Section 7 for pneumatic and electrical diagrams.

See Figures 6-1 and 6-3 for the parts listed in this table:

| Item | Part | Description | Quantity | Note |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------|----------|---------------------|
| 1 | 1034033 | SCREW, pan head, recessed, M6 x 10, zinc | 24 | |
| 2 | 983128 | WASHER, lock, internal, M6, steel, zinc | 16 | |
| 3 | 1036657 | MODULE, digital airflow control | AR | A |
| 4 | 1033836 | PLATE, blank, enclosure | AR | A |
| 5 | 1027256 | GASKET, module, digital airflow control | AR | A |
| 6 | 982802 | SCREW, socket, M5 x 70, black | AR | A |
| 7 | 1033878 | REGULATOR, rolling diaphragm, 0–120, 1/2 in. | AR | A, B |
| 8 | 972240 | CONNECTOR, male, elbow, 12 mm tube x 1/2 in. | AR | A |
| 9 | 1034000 | FITTING, 1/2 in. RPT x (4) 10 mm tube | AR | A |
| 10 | 148256 | PLUG, 10 mm tubing | AR | A |
| 11 | 983414 | WASHER, flat, M8, zinc | 4 | |
| 12 | 983436 | WASHER, lock, split, M8, zinc | 4 | |
| 13 | 982716 | SCREW, button head, socket, M8 x 12 | 4 | |
| 14 | 1107144 | PCA, dual gun driver, iControl, Encore | AR | A, E |
| 14A | 1095361 | JUMPER, gun ID, odd number | AR | D |
| 15 | 1031501 | RECEPTACLE, 8 position, gun, 70 in. | AR | A, C |
| 15A | 1023695 | SEAL, bulkhead, 7/8–16 thread | AR | C |
| <p>NOTE A: Quantities of noted parts depends on system configuration and console type.</p> <p>B: New regulators must be calibrated using iFlow air flow verification kit. Refer to <i>Miscellaneous Kits</i> on page 6-13.</p> <p>C: Use to cap unused receptacles. One seal is shipped with each console. See Figure 6-3.</p> <p>D: Use to prevent fault LED from lighting when odd number of guns are connected. Plug into gun card receptacle in place of receptacle harness for unused receptacle. One jumper is shipped with each console.</p> <p>E: Jumper included.</p> <p>AR: As Required</p> | | | | |
| | | | | <i>Continued...</i> |

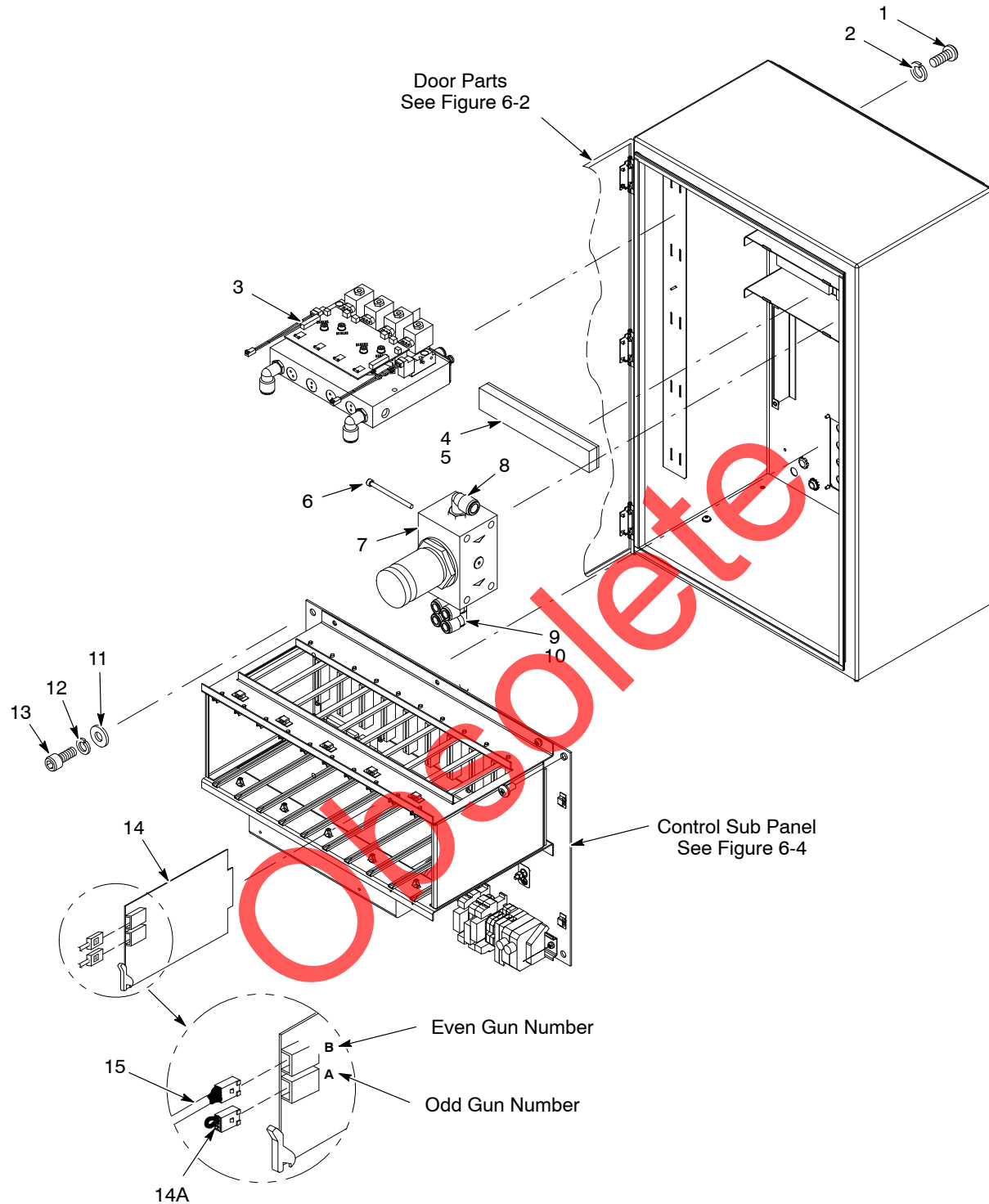


Figure 6-1 Console Parts (1 of 5)

Console Parts *(contd)*

See Figure 6-2 for the parts listed in this table:

| Item | Part | Description | Quantity | Note |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------------------------|----------|---------------------|
| 16 | 1100090 | CONTROL UNIT, PC, panel mount, w/Ethernet | 1 | |
| 65 | 1051544 | • INTERFACE CARD, PC104 CAN | 1 | B |
| 66 | 1105343 | • CARD, I/O, PC104 | 1 | B |
| 17 | 1000594 | SWITCH, keylock, 3 position | 1 | |
| 18 | 1000595 | CONTACT block, 1-N.O. and 1-N.C. contact | 2 | |
| 19 | 1036690 | PANEL, keypad, iControl | 1 | |
| 20 | 1100775 | MODULE, 24 channel opto-isolated digital input | 1 | |
| 63 | ----- | • CABLE, IDE, 80-conductor | 1 | |
| 21 | 1032390 | JUMPER, comb type, 6 pole, 10 mm | AR | A, C |
| 23 | 1034281 | MEMORY, CompactFlash | 1 | |
| 24 | 1034283 | MEMORY, programmed, iControl | 1 | |
| 25 | 240674 | TAG, ground | AR | C |
| 26 | 983401 | WASHER, lock, split, M5, steel, zinc | AR | C |
| 27 | 984702 | NUT, hex, M5, brass | AR | C |
| 28 | 288806 | CONTACT BLOCK, 2 N.O. contacts | 1 | |
| 29 | 334806 | SWITCH, round, 2 position, 90 degree | 1 | |
| NS | 1055881 | CABLE, CAT5 Ethernet, T568B colors, 30 ft | 1 | |
| NOTE A: Jumpers may need to be trimmed to fit into the terminals. B: Included with control unit. C: Quantities of noted parts depends on system configuration and console type. AR: As Required NS: Not Shown | | | | |
| | | | | <i>Continued...</i> |

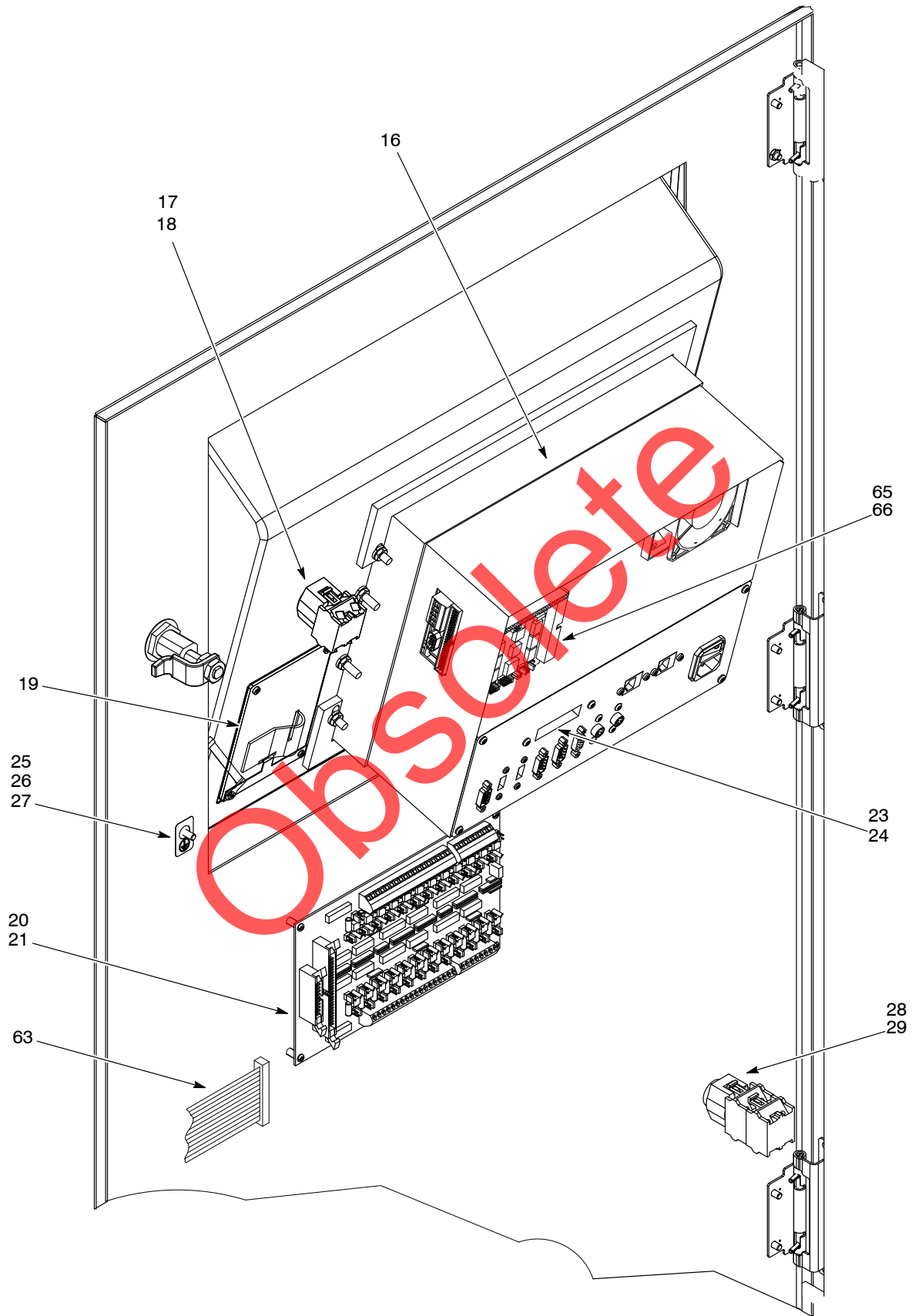


Figure 6-2 Console Parts (2 of 5)

Console Parts *(contd)*

See Figure 6-3 for the parts listed in this table:

| Item | Part | Description | Quantity | Note |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------|----------|---------------------|
| 30 | 183418 | PLUG, 12 mm, tube | AR | A |
| 31 | 971106 | CONNECTOR, male, 12 mm tube x 1/2 in. unithread | AR | A |
| 32 | ----- | GASKET, manifold, iControl | 1 | |
| 33 | 973442 | PLUG, pipe, socket, flush, 3/4 in. NPT, zinc | 1 | |
| 34 | 984526 | NUT, lock, 1/2 in. conduit | AR | A |
| 35 | 334800 | PLUG, 1/2 in. pipe, 1 in. hex | AR | A |
| 36 | 939122 | SEAL, conduit fitting, 1/2 in. | AR | A |
| 37 | 241040 | MUFFLER, air, 1/8 in. NPT | 1 | |
| 38 | 344252 | VALVE, check, M8T x R18, M output | 1 | |
| 39 | 972105 | CONNECTOR, male, 37, 1 1/16-12 x 3/4 in., steel | 1 | |
| 40 | 973227 | ELBOW, 3/4 in. malleable, galvanized | 1 | |
| 41 | 324343 | CONNECTOR, conduit, straight, 0.50 in. | 2 | |
| 42 | 248375 | CONDUIT, flexible, bulk, 1/2 in. | AR | C |
| NS | 1053397 | FITTING, liquid tight, elbow, 3/4 in., 45 degree | 1 | |
| NS | 933251 | CONDUIT, flexible, bulk, 3/4 in. | AR | |
| NS | 272058 | SEAL, conduit fitting, 3/4 in. | 1 | |
| NS | 900740 | TUBING, polyurethane, 10/6.5-7 mm | AR | C |
| NS | 226690 | TUBING, polyurethane, 12/8mm, blue | AR | C |
| NS | 240976 | CLAMP, ground, with wire | 1 | |
| NS | 802060 | HOSE, 5 ft | 1 | |
| NOTE A: Quantities of noted parts depends on system configuration and console type. C: Order in increments of one foot. AR: As Required NS: Not Shown | | | | |
| | | | | <i>Continued...</i> |

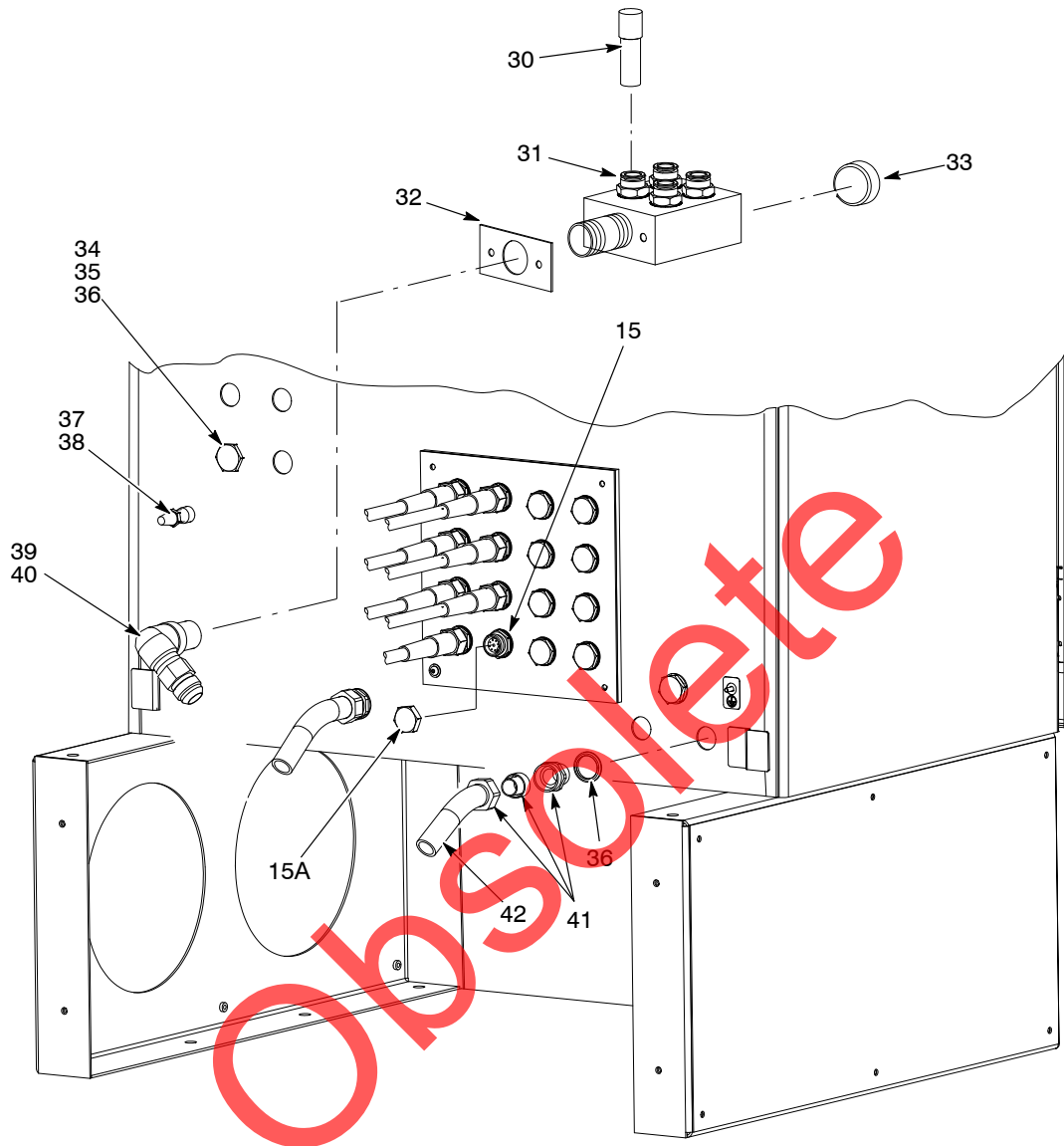


Figure 6-3 Console Parts (3 of 5)

Console Parts *(contd)*

See Figure 6-4 for the parts listed in this table:

| Item | Part | Description | Quantity | Note |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------|----------|---------------------|
| 44 | 1023939 | PCA, backplane, iControl | 1 | |
| 45 | 982825 | SCREW, pan head, recessed, M4 x 12, w/internal lockwasher | 4 | |
| 46 | 320586 | RESISTOR, MF, 20K, 1W, 5 AXL | 2 | |
| 47 | 334805 | FILTER, line, RFI, power, 10A | AR | A |
| 48 | 1605395 | JACKETED CABLE, twisted pair, shielded, 24 AWG, 120 ohm | AR | A, B |
| 49 | 185034 | CONNECTOR, terminal block, MC1, 5/ST, single row | AR | A |
| 50 | 240674 | TAG, ground | 2 | |
| 51 | 983401 | WASHER, lock, split, M5, steel, zinc | 4 | |
| 52 | 983021 | WASHER, flat, 0.203 x 0.406 x 0.040 in., brass | 2 | |
| 53 | 984702 | NUT, hex, M5, brass | 2 | |
| 54 | 1098442 | POWER SUPPLY, 400W, +24V, +/- 12V, +5V | 1 | |
| 55 | 983403 | WASHER, lock, split, M4, steel, zinc | 4 | |
| 56 | 982164 | SCREW, pan head, slotted, M4 x 6, zinc | 4 | |
| NOTE A: Quantities of noted parts depends on system configuration and console type. B: Order in increments of one foot. AR: As Required | | | | |
| | | | | <i>Continued...</i> |

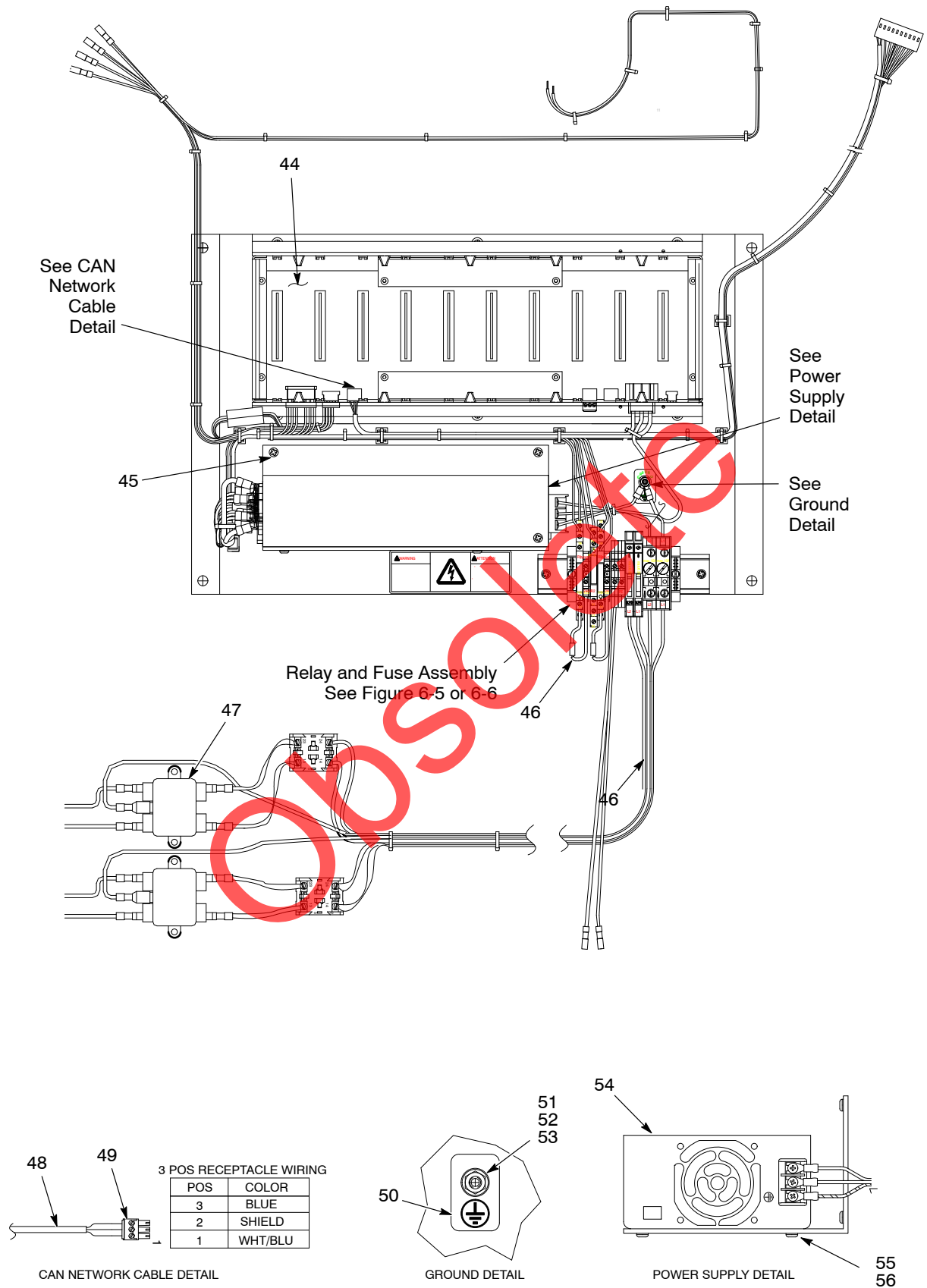


Figure 6-4 Console Parts (4 of 5)

Console Parts *(contd)*

Control Relays and Fuses

| Item | Part | Description | Quantity | Note |
|------|---------|-------------------------------------------|----------|------|
| 58 | 1068695 | CONTROL RELAY, 115VAC/DC, 250V/6A, DIN-MT | 2 | |
| 59 | 1068696 | CONTROL RELAY, 24VDC, 250V/6A, DIN-MT | 1 | |
| 61 | 939709 | FUSE, 10.00, fast-acting, 250V | 2 | |
| 62 | 939306 | FUSE, 3.15, fast-acting, 250V, 5x20 | 2 | |
| NS | 320586 | RESISTOR, MF, 20K, 1W, 5 AXL | 2 | |

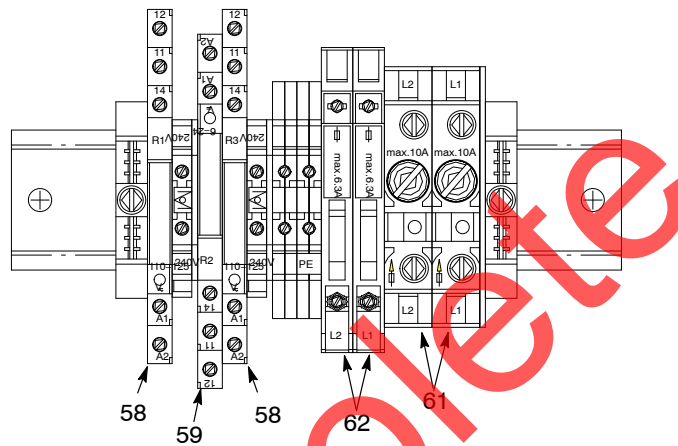


Figure 6-5 Control Relays and Fuses – Console Parts (5 of 5)

Flow Module Parts

See Figure 6-6.

| Item | Part | Description | Quantity | Note |
|------|---------|-----------------------------------------------|----------|------|
| – | 1036657 | MODULE, digital airflow control | 1 | |
| 1 | 1099302 | • VALVE, solenoid, 3-way, w/connector | 2 | A |
| 2 | 972125 | • ELBOW, male, 10 mm tube x 1/4 in. unithread | 2 | |
| 3 | 1030873 | • VALVE, check, M8T x R1/8, M input | 4 | |
| 4 | 1033171 | • CONNECTOR, orifice, 4mm x R1/8, dia 0.4mm | 2 | |
| 5 | 1027547 | • VALVE, proportional, solenoid, sub-base | 4 | |

NOTE A: The iFlow module can use one of two circuit board part numbers: If using board 1023932, order solenoid valve 1099302. If using board 1099635, order solenoid valve 1099288.

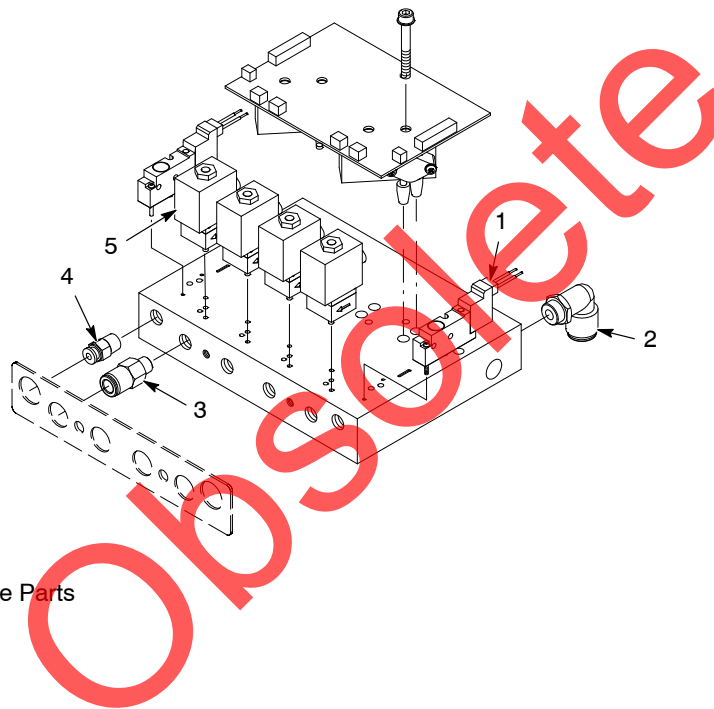


Figure 6-6 Flow Module Parts

Options

CAN Cable

| Part | Description | Note |
|---------|---------------------------------------------------------|------|
| 1605395 | JACKETED CABLE, twisted pair, shielded, 24 AWG, 120 ohm | A |

NOTE A: Order length desired in increments of one foot.

Junction Boxes, Extension Boxes, and Control Panels

| Part | Description | Note |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------|
| 1035897 | JUNCTION BOX, photoeye, 30 watt, iControl | A |
| 1035899 | JUNCTION BOX, photoeye extension, iControl | A |
| 1055890 | JUNCTION BOX, scanner, in/out positioner, iControl | A |
| 1103901 | INTERFACE BOX, Ethernet network, iControl | A |
| 1055889 | CONTROL PANEL, in/out positioner, iControl | A, B |
| 1055883 | CONTROL PANEL, analog positioner, iControl | A, E |
| 1070103 | CONTROL PANEL, in/out positioner/reciprocator, iControl | A, B |
| 1098087 | CONTROL PANEL, in/out positioner, iControl (plug-in) | A, C |
| 1097160 | CONTROL PANEL, in/out positioner/reciprocator, iControl (plug-in) | A, C |
| 1092923 | CONTROL PANEL, top down positioner, iControl | A, B |
| 1092924 | CONTROL PANEL, bottom up positioner, iControl | A, B |
| 1600007 | CONTROL PANEL, bottom up, AC, plug-in, iControl | A, C, D |
| 1600011 | CONTROL PANEL, top down, AC, plug-in, iControl | A, C, D |
| NOTE A: Refer to Section 7, Wiring and Pneumatic Diagrams, for repair parts. B: Use with Nutro-built (VO618N, VrrnRD models) positioners and reciprocators. C: Use with Nordson positioners and reciprocators. D: Use with Nordson reciprocator operating as a vertical positioner. E: Special use when notes B, C, or D do not apply. | | |

Ethernet Components

| Part | Description | Note |
|---------------------------------------------------------------------------------------------|---------------------------------------------|-------------|
| 1058222 | CABLE, CAT 5 Ethernet, T568B colors, 100 ft | A |
| 1058223 | CABLE, CAT 5 Ethernet, T568B colors, 300 ft | A |
| 1058224 | MODULE, termination, CAT 5, T568B colors | |
| NOTE A: Cables have male connectors at each end. Refer to Section 3, Installation, for use. | | |

Miscellaneous Kits

| Part | Description | Note |
|-------------|-----------------------------------------------------------------------|-------------|
| 1039881 | KIT, tester, iFlow (air flow verification kit)>>> 31 <<< | |
| 1039886 | KIT, boost, iControl (flow-rate air flow boost kit for PE spray guns) | |

Recommended Air Filter for Use with iControl Systems

| Part | Description | Note |
|-------------|--------------------------------|-------------|
| 1047526 | Filter, gas and compressed air | |
| 1047524 | Element, filter | |
| 1047525 | Plate, port, 1 in., BSP | |

Conveyor Encoder

| Part | Description | Note |
|-------------|--------------------------|-------------|
| 1074261 | ENCODER, 24 PPR, w/cable | |

Photocells and Scanners

| Part | Description | Note |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------|
| 1037969 | PHOTOCELL, wire goods | |
| 131473 | SENSOR, opposed mode emitter (Banner SM31E) | |
| 131486 | SENSOR, opposed mode receiver (Banner SM31R) | |
| 170730 | PHOTOCELL, retroreflective | |
| 321158 | CONTROLLER, analog, mini-array | A |
| 321159 | CONTROLLER, discrete, mini-array | A |
| 321160 | SENSOR, light emitter, 6 in., 3/4 in.beam spacing, 8 beam | |
| 321161 | SENSOR, light receiver, 6 in., 3/4 in.beam spacing, 8 beam | |
| 321162 | SENSOR, light emitter, 12 in., 3/4 in.beam spacing, 16 beam | |
| 321163 | SENSOR, light receiver, 12 in., 3/4 in.beam spacing, 16 beam | |
| 321164 | SENSOR, light emitter, 18 in., 3/4 in. beam spacing, 24 beam | |
| 321165 | SENSOR, light receiver, 18 in., 3/4 in. beam spacing, 24 beam | |
| 339739 | SENSOR, light emitter, 24 in., 3/4 in. beam spacing, 32 beam | |
| 339740 | SENSOR, light receiver, 24 in., 3/4 in. beam spacing, 32 beam | |
| 339741 | SENSOR, light emitter, 30 in., 3/4 in. beam spacing, 40 beam | |
| 339742 | SENSOR, light receiver, 30 in., 3/4 in. beam spacing, 40 beam | |
| 339743 | SENSOR, light emitter, 36 in., 3/4 in. beam spacing, 48 beam | |
| 339744 | SENSOR, light receiver, 36 in., 3/4 in. beam spacing, 48 beam | |
| 339745 | SENSOR, light emitter, 42 in., 3/4 in. beam spacing, 56 beam | |
| 339746 | SENSOR, light receiver, 42 in., 3/4 in. beam spacing, 56 beam | |
| 339747 | SENSOR, light emitter, 48 in., 3/4 in. beam spacing, 64 beam | |
| 339748 | SENSOR, light receiver, 48 in., 3/4 in. beam spacing, 64 beam | |
| 339749 | SENSOR, light emitter, 60 in., 3/4 in. beam spacing, 80 beam | |
| 339750 | SENSOR, light receiver, 60 in., 3/4 in. beam spacing, 80 beam | |
| 339751 | SENSOR, light emitter, 72 in., 3/4 in. beam spacing, 96 beam | |
| 339752 | SENSOR, light receiver, 72 in., 3/4 in. beam spacing, 96 beam | |
| NOTE A: Requires custom programming to match the application. Contact Nordson customer support. | | |

Photocell and Scanner Cables

| Part | Description | Note |
|--------|-------------------------------------|------|
| 176429 | SOW cable, 18-4 | |
| 321155 | CABLE, scanner, 15 ft. | |
| 321156 | CABLE, scanner, 25 ft. | |
| 321157 | CABLE, scanner, 50 ft. | |
| 343207 | CABLE, scanner rated, 15 ft. | |
| 347230 | CABLE, input, 5 wire, 6 meter, male | |

Software Replacement Kits

| Part | Description | Note |
|---------|-----------------------------------------------|------|
| 1107154 | KIT, software, iControl, Ver. 0.9.26 | |
| 1107159 | • MEMORY, programmed, iControl, Ver. 0.9.26 | |
| 1034281 | • MEMORY, Compact Flash | |
| 1107155 | KIT, software, iControl, Ver. 2.2.14.2 | |
| 1107160 | • MEMORY, programmed, iControl, Ver. 2.2.14.2 | |
| 1034281 | • MEMORY, Compact Flash | |
| 1107156 | KIT, software, iControl, Ver. 3.0.6 | |
| 1107162 | • MEMORY, programmed, iControl, Ver. 3.0.6 | |
| 1034281 | • MEMORY, Compact Flash | |

Obsolete

Obsolete

Section 7

Wiring and Pneumatic Diagrams

| Diagram | Sheets |
|------------------------------------------------------------------------------------------------------------------------------|--------|
| System Diagram | 1 |
| iControl Console Wiring Diagram (1104882) | 5 |
| iControl Console Pneumatic Diagram (1034090) | 1 |
| Photoeye Junction Box (1035897) | 4 |
| Extension Junction Box (1035899) | 1 |
| Network Interface Box (1103901) | 1 |
| In/Out Positioner Scanner Control Panel (1055890) | 2 |
| iControl In/Out Positioner Control Panel (1055889) (for Nutro-built positioners) | 6 |
| Analog (Retrofit) In/Out Positioner Control Panel (1055883) | 4 |
| iControl In/Out Positioner / Reciprocator Control Panel (1070103) (Nutro-built positioner with reciprocator) | 6 |
| iControl In/Out Positioner Control Panel (plug-in) (1098087) (for Nordson positioners) | 6 |
| iControl In/Out Positioner / Reciprocator Control Panel (plug-in) (1097160) (for Nordson positioner with reciprocator) | 7 |
| iControl Top Down Positioner Control Panel (1092923) (for Nutro-built positioner) | 5 |
| iControl Bottom Up Positioner Control Panel (1092924) (for Nutro-built positioner) | 5 |
| iControl Top Down Positioner Control Panel (1600011) (for Nordson reciprocator operating as a vertical positioner) | 7 |
| iControl Bottom Up Positioner Control Panel (1600007) (for Nordson reciprocator operating as a vertical positioner) | 7 |

Obsolete

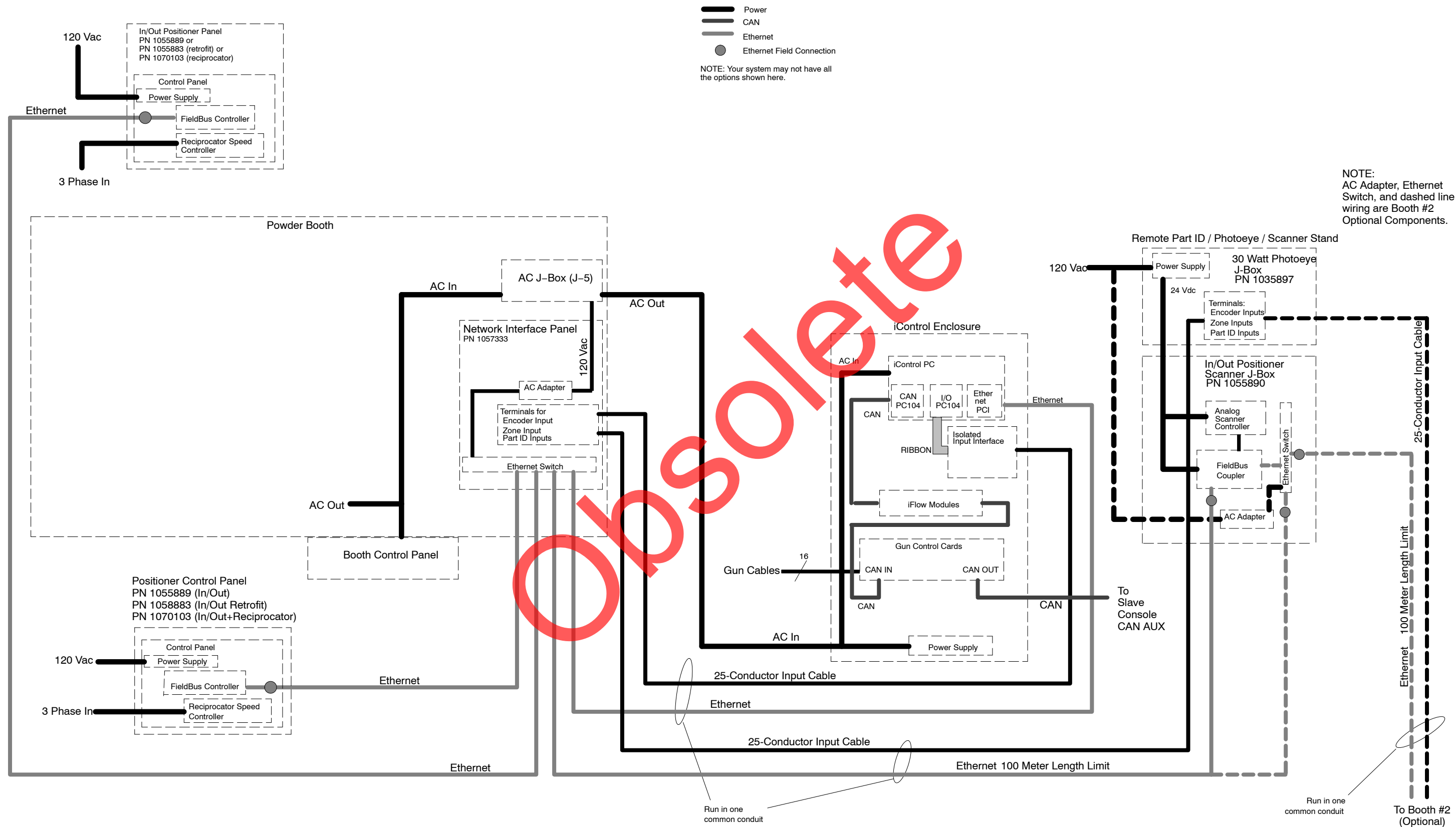


Figure 7-1 iControl System Diagram



THE FOLLOWING CONTROLLERS ARE SUITABLE FOR CLASS II,
DIV 2, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATIONS:

```

1104834 CONT.,ENCORE,iCONTROL,4 G,W/CPU
1100582 CONT.,ENCORE,iCONTROL,4 G,W/O CPU
1104836 CONT.,ENCORE,iCONTROL,6 G,W/CPU
1100589 CONT.,ENCORE,iCONTROL,6 G,W/O CPU
1104838 CONT.,ENCORE,iCONTROL,8 G,W/CPU
1100613 CONT.,ENCORE,iCONTROL,8 G,W/O CPU
1104840 CONT.,ENCORE,iCONTROL,10 G,W/CPU
1100617 CONT.,ENCORE,iCONTROL,10 G,W/O CPU
1104842 CONT.,ENCORE,iCONTROL,12 G,W/CPU
1100622 CONT.,ENCORE,iCONTROL,12 G,W/O CPU
1104830 CONT.,ENCORE,iCONTROL,14 G,W/CPU
1100626 CONT.,ENCORE,iCONTROL,14 G,W/O CPU
1104832 CONT.,ENCORE,iCONTROL,16 G,W/CPU
1100630 CONT.,ENCORE,iCONTROL,16 G,W/O CPU

```

THE ABOVE ARE APPROVED FOR USE WITH THE FOLLOWING
GUNS AND CABLES LOCATED IN A CLASS II, DIV 1, GROUP
F & G HAZARDOUS(CLASSIFIED) LOCATION:

GUNS:

| | |
|---------|---------------------------------|
| 1097489 | GUN,BAR MT,AUTO,ENCORE |
| 1097500 | GUN,TUBE MT,AUTO,ENCORE,6 FT |
| 1099824 | GUN,TUBE MT,AUTO,ENCORE,5 FT |
| 1606986 | GUN,TUBE MT,AUTO,ENCORE,5FT PVC |

CABLES:

| | |
|---------|-----------------------|
| 1097537 | CABLE,AUTO,ENCORE,8M |
| 1097539 | CABLE,AUTO,ENCORE,12M |
| 1097540 | CABLE,AUTO,ENCORE,16M |

1



A
10

THE FOLLOWING CONTROLLERS ARE SUITABLE FOR UNCLASSIFIED LOCATIONS:

| | | |
|---------|--------------------------|----------------|
| 1104835 | CONT.,ENCORE,iCONTROL,4 | G,W/CPU,W/AC |
| 1100587 | CONT.,ENCORE,iCONTROL,4 | G,W/O CPU,W/AC |
| 1104837 | CONT.,ENCORE,iCONTROL,6 | G,W/CPU,W/AC |
| 1100611 | CONT.,ENCORE,iCONTROL,6 | G,W/O CPU,W/AC |
| 1104839 | CONT.,ENCORE,iCONTROL,8 | G,W/CPU,W/AC |
| 1100615 | CONT.,ENCORE,iCONTROL,8 | G,W/O CPU,W/AC |
| 1104841 | CONT.,ENCORE,iCONTROL,10 | G,W/CPU,W/AC |
| 1100619 | CONT.,ENCORE,iCONTROL,10 | G,W/O CPU,W/AC |
| 1104843 | CONT.,ENCORE,iCONTROL,12 | G,W/CPU,W/AC |
| 1100624 | CONT.,ENCORE,iCONTROL,12 | G,W/O CPU,W/AC |
| 1104831 | CONT.,ENCORE,iCONTROL,14 | G,W/CPU,W/AC |
| 1100628 | CONT.,ENCORE,iCONTROL,14 | G,W/O CPU,W/AC |
| 1104833 | CONT.,ENCORE,iCONTROL,16 | G,W/CPU,W/AC |
| 1100632 | CONT.,ENCORE,iCONTROL,16 | G,W/O CPU,W/AC |

THE ABOVE ARE APPROVED FOR USE WITH THE FOLLOWING
GUNS AND CABLES LOCATED IN A CLASS II, DIV 1, GROUP
F & G HAZARDOUS(Classified) LOCATION:

GUNS:

| | | | |
|---------|----------|------------------|--------|
| 1097489 | GUN,BAR | MT,AUTO,ENCORE | |
| 1097500 | GUN,TUBE | MT,AUTO,ENCORE,6 | FT |
| 1099824 | GUN,TUBE | MT,AUTO,ENCORE,5 | FT |
| 1606986 | GUN,TUBE | MT,AUTO,ENCORE,5 | FT PVC |


CABLES:

| | |
|---------|-----------------------|
| 1097537 | CABLE,AUTO,ENCORE,8M |
| 1097539 | CABLE,AUTO,ENCORE,12M |
| 1097540 | CABLE,AUTO,ENCORE,16M |

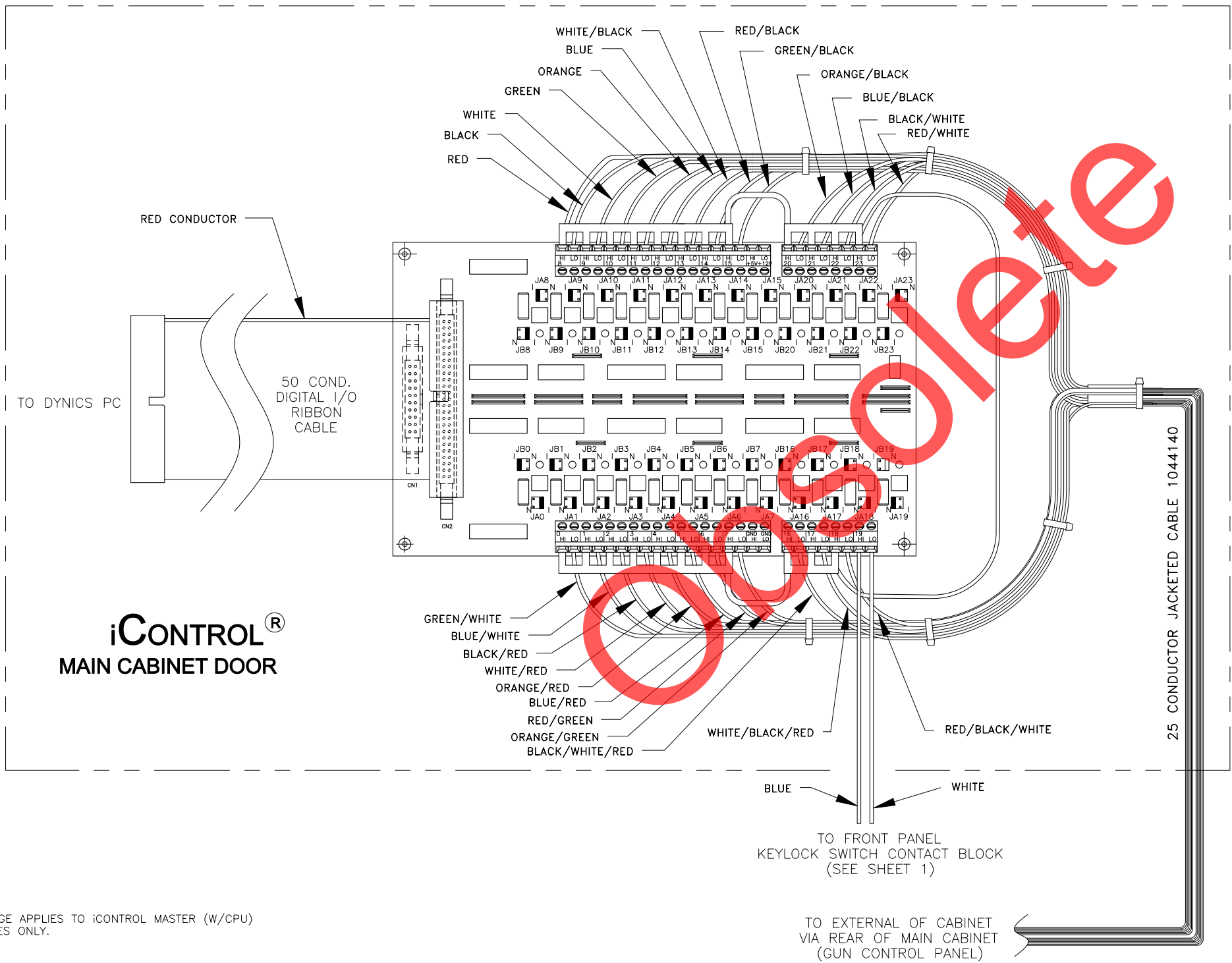
13



CRITICAL
No revisions permitted without
approval of the proper agency

| | | | | | | | | | |
|--------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------|--|-----------------|--|-------------------------------------------------------------------|--|---------------------------------------------|--|
| | | ALL DIMENSIONS IN MILLIMETERS EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | |
| | | X ± 0.8 X.X ± 0.25 1.XX ± 0.13 | | DRAWN BY JB | | DATE 29JAN10 | | REF DWG. APPROVED EQUIPMENT, ICONTROL | |
| NEXT ASSEMBLY | | MACHINED SURFACES 1.6 \checkmark AA | | CHECKED BY BF | | APPROVED BY BF | | | |
| FIRST PRODUCT USED ON ICONTROL | | BREAK: OUTSIDE AND INSIDE CORNERS 0.1 TO 0.8 MAX. | | REL NO PE601926 | | | | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1 0 4 9 0 9 2 | | REV. 15 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | FIRST ANGLE PROJECTION  | | SCALE: 1:2 | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 3 / 3 | |

24 CH OPTO ISOLATED
DIGITAL INPUT MODULE
ASSEMBLY
1105053



iCONTROL DISCRETE INPUT CABLE COLOR CODE ASSIGNMENTS

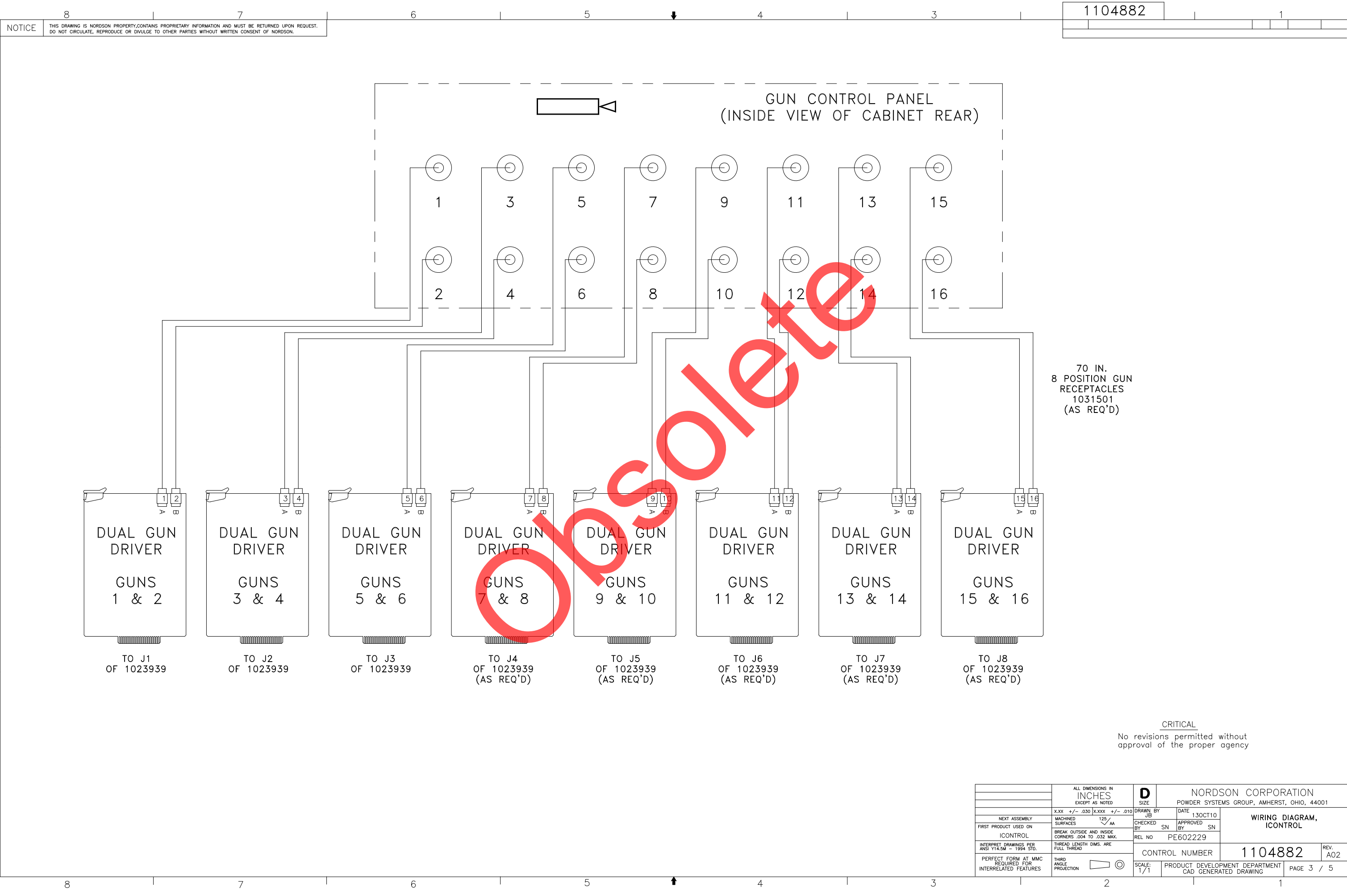
| CABLE COLOR | INPUT BOARD TERMINAL | FIELD TERMINAL NUMBER | FUNCTION |
|------------------------|----------------------|-----------------------|-----------------|
| BLK | 8 LO | 1 | ZONE 1 |
| WHT | 9 LO | 2 | ZONE 2 |
| GRN | 10 LO | 3 | ZONE 3 |
| ORG | 11 LO | 4 | ZONE 4 |
| BLU | 12 LO | 5 | ZONE 5 |
| WHT/BLK | 13 LO | 6 | ZONE 6 |
| RED/BLK | 14 LO | 7 | ZONE 7 |
| GRN/BLK | 15 LO | 8 | ZONE 8 |
| ORG/BLK | 20 LO | 9 | PART ID bit 1 |
| BLU/BLK | 21 LO | 10 | PART ID bit 2 |
| BLK/WHT | 22 LO | 11 | PART ID bit 3 |
| RED/WHT | 23 LO | 12 | PART ID bit 4 |
| GRN/WHT | 0 LO | 13 | PART ID bit 5 |
| BLU/WHT | 1 LO | 14 | PART ID bit 6 |
| BLK/RED | 2 LO | 15 | PART ID bit 7 |
| WHT/RED | 3 LO | 16 | PART ID bit 8 |
| ORG/RED | 4 LO | 17 | SPARE |
| BLU/RED | 5 LO | 18 | SPARE |
| RED/GRN | 6 LO | 19 | SPARE |
| ORG/GRN | 7 LO | 20 | ENCODER A |
| BLK/WHT/RED | 16 LO | 21 | ENCODER B |
| WHT/BLK/RED | 17 LO | 22 | SPARE |
| RED/BLK/WHT | 18 LO | 23 | SPARE |
| GRN/BLK/WHT | N/C | -- | -- |
| BLUE from FRONT PANEL | 19 HI | -- | CONVEYOR I-LOCK |
| WHITE from FRONT PANEL | 19 LO | -- | CONVEYOR I-LOCK |
| RED | 8 HI | (+) | VDC |

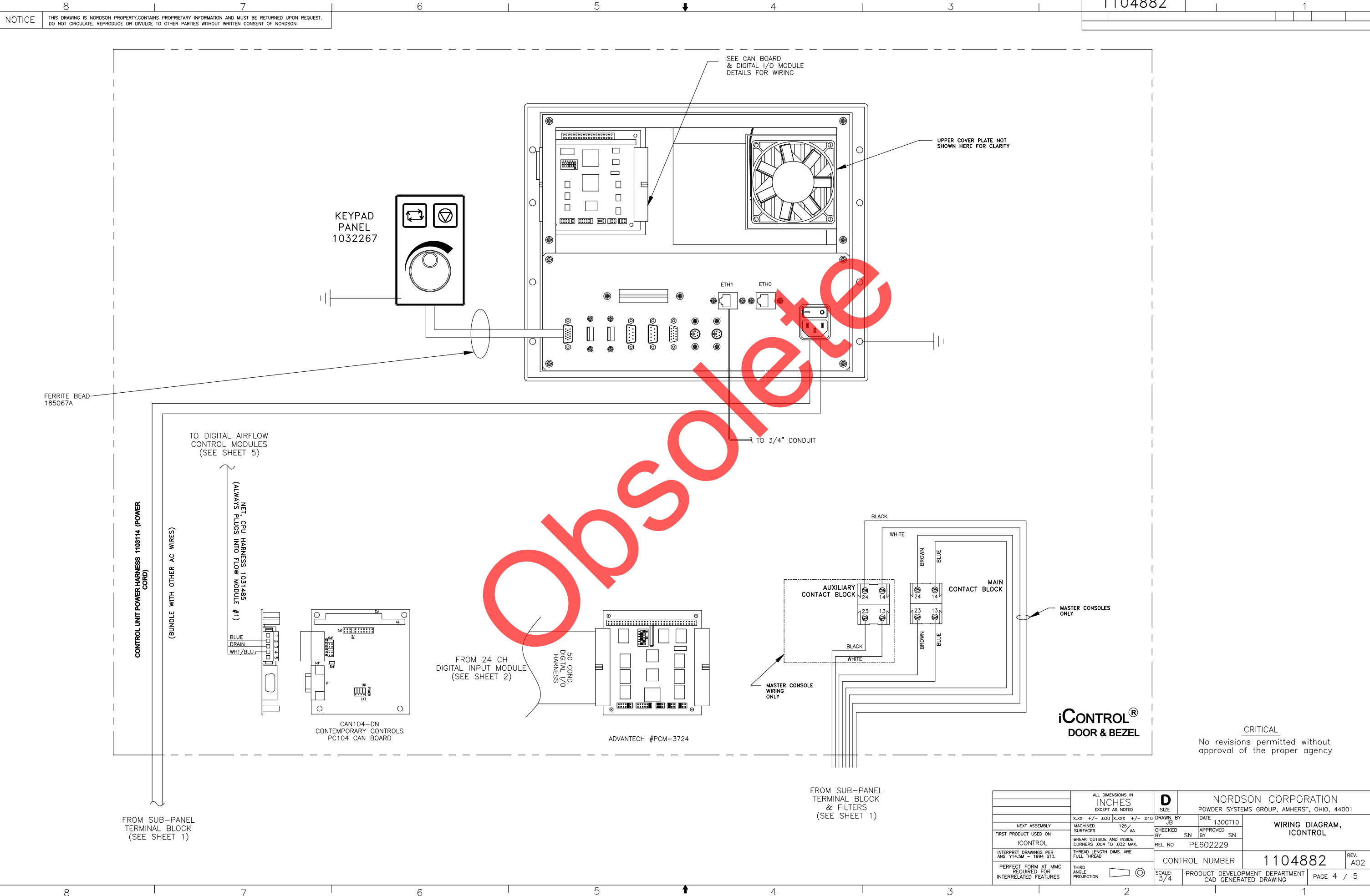
CRITICAL

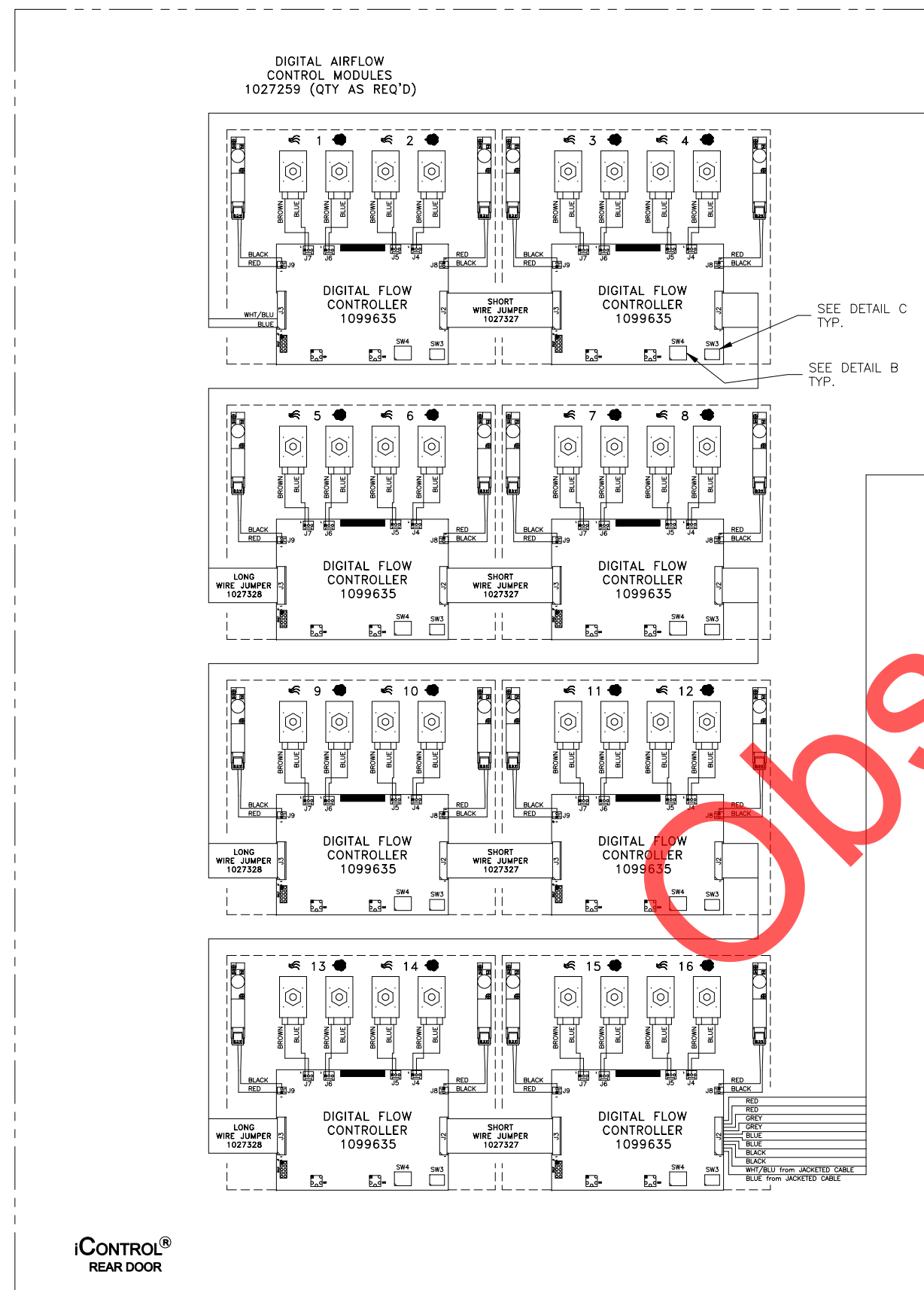
No revisions permitted without
approval of the proper agency

NOTES:
1.) THIS PAGE APPLIES TO iCONTROL MASTER (W/CPU)
CONSOLES ONLY.

| | | | | |
|--------------------------------------------------------------|-------------------------------------------------------|----------------|-------------------------------------------------------------------|---------------------------------------------------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 AA | CHECKED BY | DATE |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE602229 | 13OCT10 |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | 1104882 | REV. A02 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: | 1/1 | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING |







NET, CPU HARNESS 1031485 (ALWAYS PLUGS INTO FLOW MODULE #1)

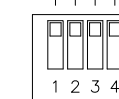
FROM PC104 CAN BOARD
(SEE SHEET 4)

DIGITAL FLOW, NET, PWR HARNESS 1042648
(ALWAYS PLUGS INTO LAST "HIGHEST NUMBERED" MODULE)

FROM SUB-PANEL
TERMINAL BLOCK
& BACKPLANE
(SEE SHEET 1)

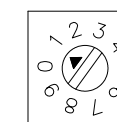
| | SW4 | | CONSOLE |
|--------|-------|-------|---------|
| | BIT 3 | BIT 4 | |
| MASTER | UP | UP | 1 |
| SLAVE | UP | DOWN | 2 |
| SLAVE | DOWN | UP | 3 |
| SLAVE | DOWN | DOWN | 4 |

N/A SEE TABLE




DETAIL B

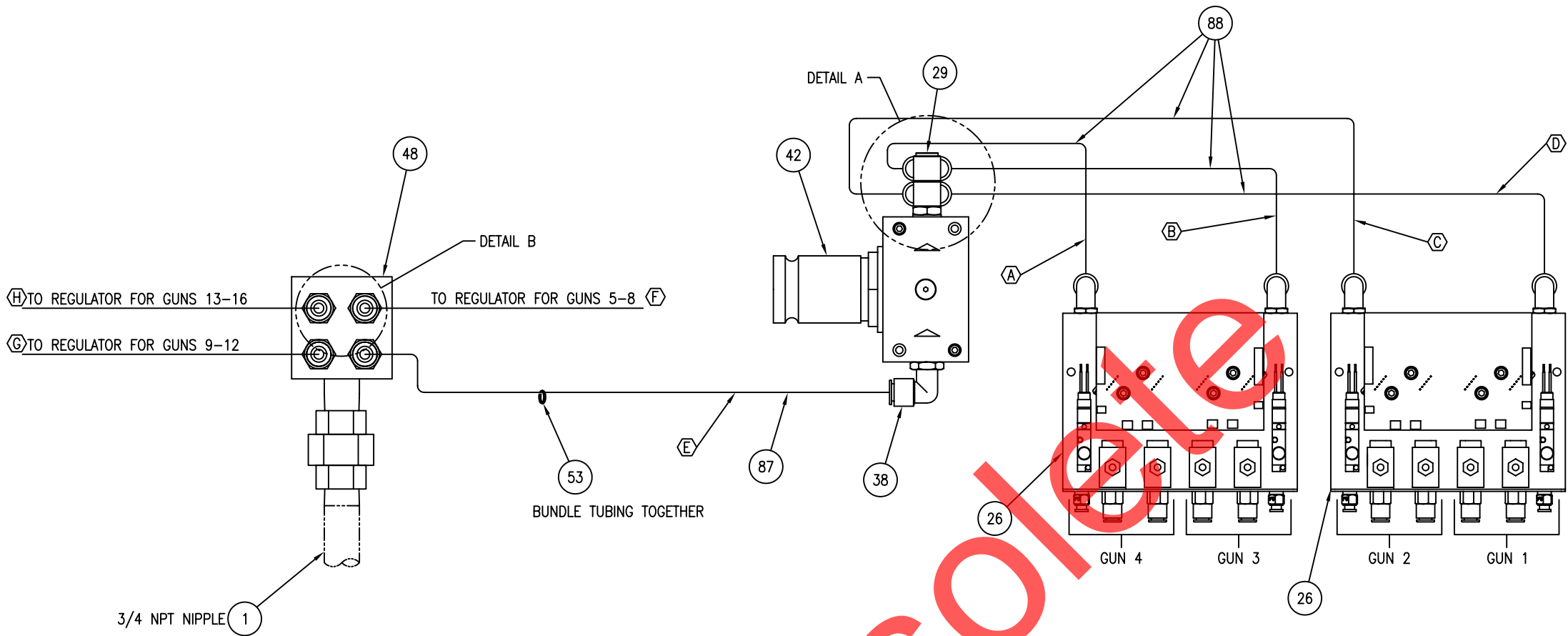
| SW3 | |
|-------------|----------------------------------|
| GUN NUMBERS | SET FLOW MODUL SELECTOR TO |
| 1-2 | 1 |
| 3-4 | 2 |
| 5-6 | 3 |
| 7-8 | 4 |
| 9-10 | 5 |
| 11-12 | 6 |
| 13-14 | 7 |
| 15-16 | 8 |



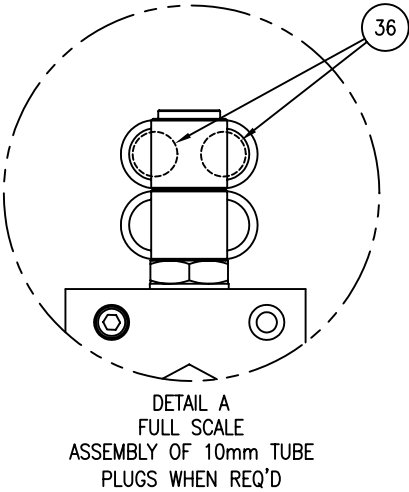
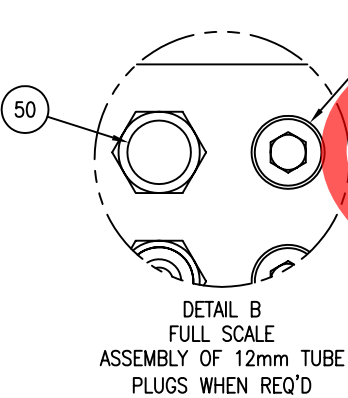
DETAIL C

CRITICAL
No revisions permitted without
approval of the proper agency

| | | | | | | | |
|-----------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|--------------------|--|-------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | X.XXX +/- .030 X.XXX +/- .010 MACHINED SURFACES 125 / AA | | DRAWN BY JB | | DATE 13OCT10 | |
| NEXT ASSEMBLY | | | | CHECKED BY SN | | APPROVED BY SN | |
| FIRST PRODUCT USED ON ICONTROL | | BREAK: OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO PE602229 | | WIRING DIAGRAM, ICONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1104882 | |
| PERFECT FORM AT MMC REQUIRED FOR UNRELATED FEATURES | | THIRD- ANGLE PROJECTION | | SCALE: 1/2 | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | |  | | | | PAGE 5 / 5 | |



| CUT LENGTH ±.25 | |
|-----------------|-------|
| (A) | 13.00 |
| (B) | 15.00 |
| (C) | 17.00 |
| (D) | 21.00 |
| (E) | 39.50 |
| (F) | 34.00 |
| (G) | 29.00 |
| (H) | 24.00 |



- NOTES:
- COMPONENTS ARE DRAWN IN RELATIVE POSITION TO ACTUAL LOCATION IN ENCLOSURE.
 - CUT TUBES (ITEMS 87 & 88) TO LENGTHS INDICATED ON CHART & INSTALL. CUT LENGTHS A-D REPEAT FOR ALL 4 SHELVES AS NEEDED.
 - PLUGS (ITEMS 36 & 50) DEPICTED IN DETAILS A & B MAY BE REQ'D. SEE BOM FOR QUANTITY.
 - FOR DETAILS OF ITEM 48, SEE REF. DRAWING 1073367

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|----------------|--------|-------------------------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | C SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| XXXXXX | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | DJT | DATE | 02OCT02 |
| NEXT ASSEMBLY | MACHINED SURFACES 125 AA | CHECKED BY | XXX | APPROVED BY | XXX |
| FIRST PRODUCT USED ON ICONTROL | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE0841 | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1034090 | REV. A08 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE | 1/2 | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 1 / 1 |

| NOTICE | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|-------------------------------------------------|------|------------------|
| THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON. | | | | | |
| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | NORDSON PART NO. |
| [ASSEMBLY BOM] | | | | | |
| 0 | X | | REF DWG ASSY, JUNCTION BOX, PHOTO-EYE, 30W | 1 | 1082005 |
| 1 | X | 832R8 | ENCLOSURE, CONT HING, 14X12X6, W/KNOCKOUTS | 1 | 1081440 |
| 2 | X | A-14P12 | PANEL, 12.75 X 10.88, FOR 14X12 ENCLOSURE | 1 | 1057271 |
| 3 | X | 051450000 | TBACCY, DIN, RAIL, SLOT, 35X2M-L6 | .6M | 239214 |
| 4 | X | F1X3LG6 | WIREDUCT, 1 X 3, PVC, GRAY, SLOTTED | 1 | 1090158 |
| 5 | X | C1LG6 | COVER, 1 | 2 | 1046394 |
| 6 | X | | SCR, HEX, SELF TAP, 10-32X .500, Z | 12 | 981137 |
| 7 | X | | WASHER, LK, EXT, #10, STL, ZN | 6 | 983124 |
| 8 | X | 1492-J4 | TERMINAL BLOCK, GRAY, IEC, 22-10 AWG, J4 | 24 | 1075583 |
| 9 | X | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, 30-12 AWG, JG4 | 3 | 1075665 |
| 10 | X | 1492-EBJ3 | BARRIER, TCACCY, END, DIN, GRAY, J SERIES | 1 | 1075584 |
| 11 | X | 1492-EAJ35 | ANCHOR, END | 2 | 306318 |
| 12 | X | SPD24301 | POWER SUPPLY, DIN RAIL, MT, 30W, 24-28VDC | 1 | 1080749 |
| 13 | X | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4" X 1-1/4 FUSES | 1 | 341366 |
| 14 | X | 1492-N37 | END, PLATE, AB FUSE | 1 | 341367 |
| 15 | X | MDL-1-R | FUSE, 2AMP, SLOBO, 250V, 3AG, 313 | 1 | 939132 |
| 16 | X | | LABEL SET, BASE, PHOTOEYE, JUNCTION BOX | 1 | 1082023 |
| 17 | X | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | 1078531 |
| 18 | X | 8002-150 | TAG, WARNING, ELEC, SHOCK HAZARD, 1.00X.88 | 1 | 1075682 |
| 19 | X | | LABEL SET, PANEL, WIRING FOR 1035897 | 1 | 1083081 |
| 20 | X | | WIRE, VINYL, 18AWG, RED | 1 | 931170 |
| 21 | X | | WIRE, VINYL, 18AWG, WHITE | 1 | 939888 |
| 22 | X | | WIRE, 105C, 18GA, BLUE, 600V | 2.5 | 335174 |
| 23 | X | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 4 | 931191 |
| 24 | X | | STRAP, CABLE, .875 DIA | 2 | 939110 |
| 25 | X | | MOUNT, CABLE STRAP | 1 | 242837 |
| 26 | X | | NUT, HEX, MACH, #10-32, BRASS | 2 | 984129 |
| 27 | X | | WASHER, LK, E, SPT, #10, STL, NI | 1 | 983120 |
| 28 | X | | WASHER, FLT, E, 203X, 406X, 040, BR | 1 | 983021 |
| 29 | X | | LABEL, IDENTIFICATION, 1.00 X 2.00 | 1 | 1005678 |
| 30 | X | | TERMINAL RING TONGS, INS, 16-14, 10 | 1 | 933054 |
| 31 | X | | BOX, CST-1, HEATER, HM | 1 | 603124 |
| 32 | X | | LABEL, BLANK, 3.00X5.00 | 1 | 603348 |
| 33 | X | | BOX, 19 3/8X17 3/8 X 8 3/4 | 1 | 603054 |
| 34 | X | | PREFIX RESERVED | 1 | 000000 |
| [OPTIONAL ZONE PHOTO-EYE BOM] | | | | | |
| 36 | X | 1492-J4 | TERMINAL BLOCK, GRAY, IEC, 22-10 AWG, J4 | 8 | 1075583 |
| 37 | X | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, 30-12 AWG, JG4 | 4 | 1075665 |
| 38 | X | 1492-EBJ3 | BARRIER, TCACCY, END, DIN, GRAY, J SERIES | 1 | 1075584 |
| 39 | X | 1492-EAJ35 | ANCHOR, END | 2 | 306318 |
| 40 | X | | LABEL SET, PHOTOEYE, ZONE | 1 | 1082273 |
| 41 | X | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | 1078531 |
| 42 | X | | WIRE, 105C, 18GA, BLUE, 600V | 2 | 335174 |
| 43 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | A/R | 972808 |
| 44 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | A/R | 939122 |
| 45 | X | | NUT, LOCK, 1/2 CONDUIT | A/R | 984526 |
| [OPTIONAL PART ID PHOTO-EYE BOM] | | | | | |
| 46 | X | 1492-J4 | TERMINAL BLOCK, GRAY, IEC, 22-10 AWG, J4 | 8 | 1075583 |
| 48 | X | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, 30-12 AWG, JG4 | 4 | 1075665 |
| 49 | X | 1492-EBJ3 | BARRIER, TCACCY, END, DIN, GRAY, J SERIES | 1 | 1075584 |
| 50 | X | 1492-EAJ35 | ANCHOR, END | 2 | 306318 |
| 51 | X | | LABEL SET, PHOTOEYE, PART ID | 1 | 1082270 |
| 52 | X | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | 1078531 |
| 53 | X | | WIRE, 105C, 18GA, BLUE, 600V | 1.5 | 335174 |
| 54 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | A/R | 972808 |
| 55 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | A/R | 939122 |
| 56 | X | | NUT, LOCK, 1/2 CONDUIT | A/R | 984526 |
| [OPTIONAL SCANNER 1 BOM] | | | | | |
| 58 | X | 60316 | CONTROLLER, MINI-ARRAY, DISCRETE | A/R | 321159 |
| 59 | X | 60317 | CONTROLLER, MINI-ARRAY, ANALOG | A/R | 321158 |
| 60 | X | | LABEL SET, PHOTOEYE, SCANNER 1 | 1 | 1082271 |
| 61 | X | | WIRE, 105C, 18GA, BLUE, 600V | A/R | 335174 |
| 62 | X | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 1 | 931191 |
| 63 | X | | STRAP, CABLE, .875 DIA | 1 | 939110 |
| 64 | X | | PREFIX RESERVED | 1 | 000000 |
| 65 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | 2 | 972808 |
| 66 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | 2 | 939122 |
| 67 | X | | NUT, LOCK, 1/2 CONDUIT | 2 | 984526 |
| 68 | X | QDC-515C | CABLE, SCANNER, 15FT | A/R | 321155 |
| 69 | X | QDC-525C | CABLE, SCANNER, 25FT | A/R | 321156 |
| 70 | X | QDC-550C | CABLE, SCANNER, 50FT | A/R | 321157 |
| 71 | X | | PREFIX RESERVED | 1 | 000000 |
| [OPTIONAL SCANNER 2 BOM] | | | | | |
| 72 | X | 60316 | CONTROLLER, MINI-ARRAY, DISCRETE | A/R | 321159 |
| 73 | X | 60317 | CONTROLLER, MINI-ARRAY, ANALOG | A/R | 321158 |
| 74 | X | | LABEL SET, PHOTOEYE, SCANNER 2 | 1 | 1082272 |
| 75 | X | | WIRE, 105C, 18GA, BLUE, 600V | A/R | 335174 |
| 76 | X | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 1 | 931191 |
| 77 | X | | PREFIX RESERVED | 1 | 000000 |
| 78 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | 2 | 972808 |
| 79 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | 2 | 939122 |
| 80 | X | | NUT, LOCK, 1/2 CONDUIT | 2 | 984526 |
| 81 | X | QDC-515C | CABLE, SCANNER, 15FT | A/R | 321155 |
| 82 | X | QDC-525C | CABLE, SCANNER, 25FT | A/R | 321156 |
| 83 | X | QDC-550C | CABLE, SCANNER, 50FT | A/R | 321157 |
| 84 | X | | PREFIX RESERVED | 1 | 000000 |
| [OPTIONAL ENCODER TIMER BOM] | | | | | |
| 86 | X | KSD3330A | MODULE, TIMER, RECYCLING | 1 | 1082239 |
| 88 | X | P1023-20 | ADAPTER, DIN RAIL, TIMER | 1 | 1082238 |
| 89 | X | | WIRE, 105C, 18GA, BLUE, 600V | 3 | 335174 |
| 90 | X | | TERMINAL, PUSH ON, INS, 250, 22-18, 12245-2 | 3 | 933162 |
| 91 | X | | PREFIX RESERVED | 1 | 000000A |
| [OPTIONAL CONNECTORS BOM] (FOR CONN OPTION, SEE SHEET 4) | | | | | |
| 93 | X | MIN-5MR-3 | RECEPTACLE, 5 PIN, MALE, 18 AWG, 36 IN LEADS | 1 | 1087623 |
| 94 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | 2 | 939122 |
| 95 | X | | NUT, LOCK, 1/2 CONDUIT | 2 | 984526 |
| 96 | X | | STRAP, CABLE, .875 DIA | 6 | 939110 |
| 97 | X | FT-221-1/8 BLACK | TUBING, HEAT-SHRINK, .125 | 3 IN | 931315 |
| 98 | X | SB-875-11 | BUSHING, SNAP, 11/16 ID | 1 | 900718 |
| 99 | X | 09 30 024 0301 | CONN, HOUSING, HAN, RECT, SHELL-ONLY | 1 | 1055320 |
| 100 | X | | SPACER, CONNECTOR, 24 POSITION | 1 | 1091712 |
| 101 | X | 09 30 000 9994 | GASKET, CONNECTOR, 24 POSITION | 1 | 1091714 |
| 102 | X | | SCR, PAN, SLT, M4X25, ZN | 4 | 982097 |
| 103 | X | | WASHER, FLT, .203X, 309X, 04, NYLON | 4 | 983038 |
| 104 | X | | WASHER, LK, M, EXT, M4, STL, ZN | 4 | 983421 |
| 105 | X | | NUT, HEX, M4, STL, ZN | 4 | 984715 |
| 106 | X | 09 33 024 2701 | INSERT, CONN, FEMALE, HARTING, 09330242701 | 1 | 1091711 |
| 107 | X | 6309 | JXTCABL, 25-CONN, SHIELD, 24AWG | 1 FT | 1033952 |
| 108 | X | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 1 FT | 931191 |
| 109 | X | | LABEL SET, CONN OPTION, FOR 1035897 | 1 | 1091716 |
| 110 | X | 1R5000A20F020 | RECEPTACLE, CORD, 5 PIN, MINI, 16 GA, 300V, FEM | 1 | 1071818 |
| 111 | X | | | | |

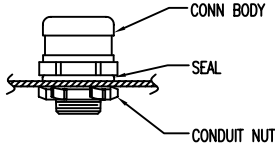
INSTALL OPTIONAL CORD CONNECTORS FOR PART ID PHOTO-EYES (AS REQUIRED) AS SHOWN. SEE CORD CONNECTOR DETAIL.

OPTIONAL PART ID PHOTO-EYES APPLY LABELS AS INDICATED.

USE THESE LOCATIONS FOR OPTIONAL SCANNER 2 CABLE ACCESS. LABEL EACH CORD GRIP PAIR AS SCNR2.

TERMINAL BLOCK LAYOUT

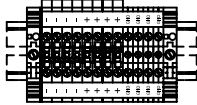
| |
|-------|
| L2 |
| PE |
| - |
| - |
| + |
| + |
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 5 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |
| GND |
| GND |
| ALG-D |
| ALG-U |



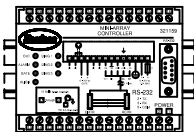
CORD CONNECTOR DETAIL

SCANNER DETAILS

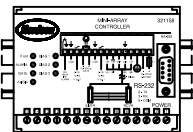
OPTIONAL PHOTOEYES POWER DISTRIBUTION.



OPTIONAL "DISCRETE" OUTPUT SCANNER, CONTROLLER



OPTIONAL "ANALOG" OUTPUT SCANNER, CONTROLLER



OPTIONAL PART ID PHOTO-EYES APPLY LABELS AS INDICATED.

INSTALL OPTIONAL CORD CONNECTORS FOR ZONE PHOTO-EYES (AS REQUIRED) AS SHOWN. SEE CORD CONNECTOR DETAIL.

USE THESE LOCATIONS FOR OPTIONAL SCANNER 1 CABLE ACCESS. LABEL EACH CORD GRIP PAIR AS SCNR1.

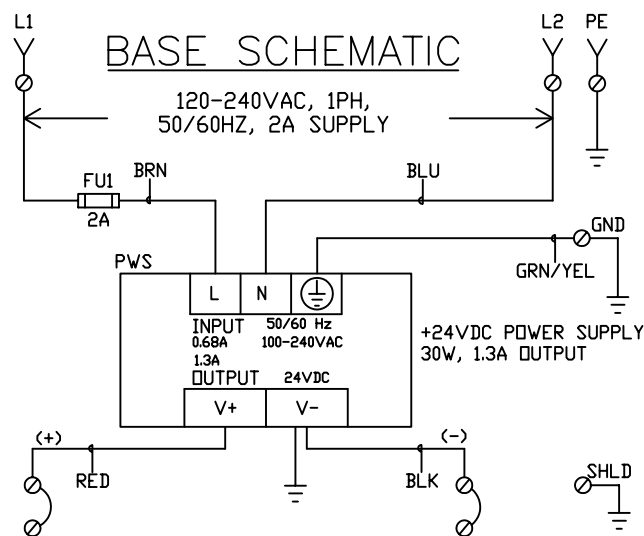
* - QUANTITIES DETERMINED BY ORDER REQUIREMENTS. A/R = AS REQUIRED

| | | | | | |
|--------------------------------------------------------|--|--------------------------------|--|--------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION | |
| NEXT ASSEMBLY | | DRAWN BY DRJ | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| FIRST PRODUCT USED ON | | CHECKED BY RF | | DATE 29OCT02 | |
| ICONTROL | | REL NO PE0851 | | APPROVED BY BL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | REF DWG, JUNCTION BOX, PHOTOEYE, 30W | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | CONTROL NUMBER | | 1035897 | |
| SCALE: 1:2 | | PRODUCT DEVELOPMENT DEPARTMENT | | REV. B12 | |
| | | CAD GENERATED DRAWING | | PAGE 1 / 4 | |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

NOTES:

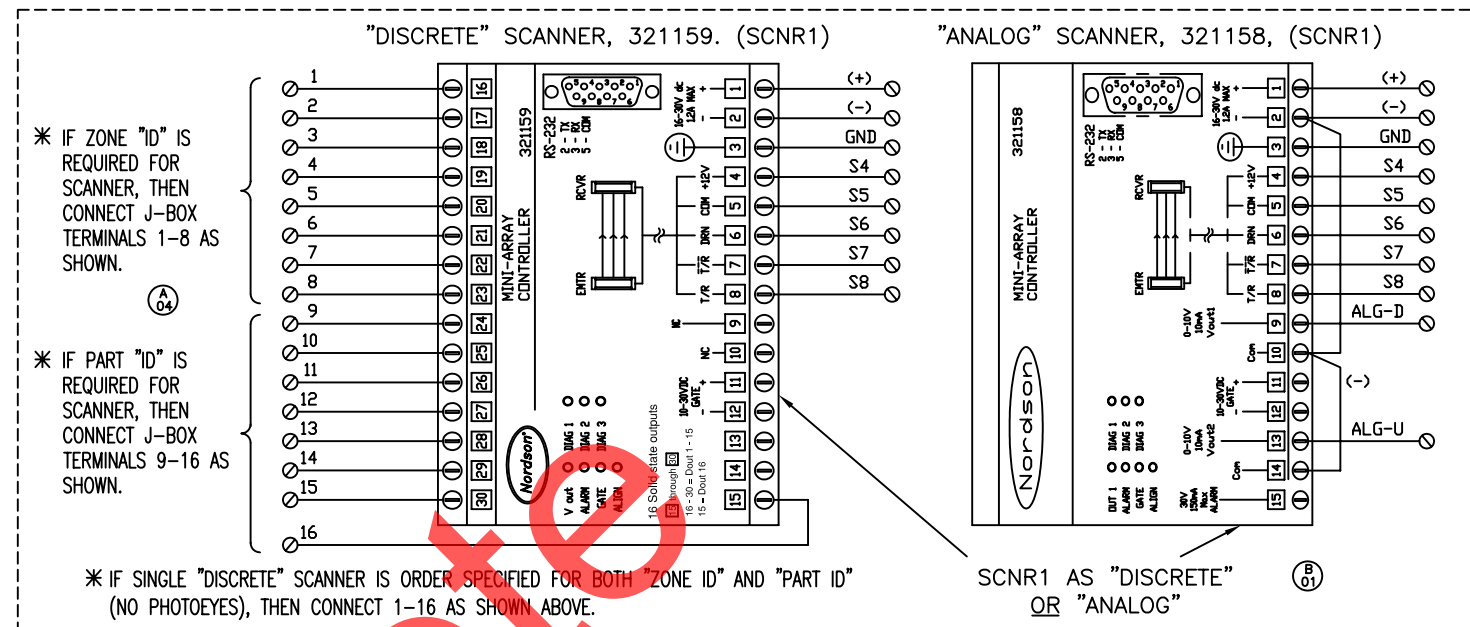
1. TO BE PACKAGED IN CARTON WITH ADEQUATE PROTECTION AND LABELED WITH NORDSON PART NUMBER AND CURRENT REVISION. AFFIX NORDSON TRADEMARK LABELS (ITEM 120) POSITIONED TO COVER ANY EXISTING VENDOR MARKINGS ON CARTON.
2. ITEMS SUPPLIED BY NORDSON.
- INSTALL AND WIRE OPTIONAL BANNER SCANNER(S) AS INDICATED, AND AS SPECIFIED PER ORDER. IF DUAL SCANNERS, THEN LABEL EACH SCANNER AS INDICATED.
 - ITEM 131 OR 132 PROVIDED, NOT BOTH. SEE DRAWING SHEET 2 FOR WIRING DETAIL.
 - IF SINGLE SCANNER, THEN CABLES TO BE WIRED THROUGH CORD GRIP CONNECTORS TO TERMINALS S4, S5, S6, S7, & S8.
 - IF DUAL SCANNERS, THEN CABLES TO BE WIRED THROUGH LABELED CORD GRIP CONNECTORS TO SCANNER TERMINALS 4, 5, 6, 7, & 8. LABEL AS INDICATED ON SHEET 1.
3. WIRE DEVICES AS INDICATED IN BASE SCHEMATIC.
4. LOCATE AND LABEL OPTIONAL PHOTOEYE AND/OR OPTIONAL SCANNER CORD GRIP CONNECTORS AS INDICATED ON DRAWING SHEET 1.
5. SCANNER #1 CAN BE EITHER AN "ANALOG" OR "DISCRETE" TYPE CONTROLLER, AS SPECIFIED PER ORDER. IF "ANALOG" IS REQUIRED, THEN THERE WILL BE NO "ZONE ID" DEVICE OR WIRING.
6. IF DUAL SCANNERS, ONE AS "ZONE ID" (OR "ANALOG") AND ONE AS "PART ID", THEN SCANNER #2 IS ALWAYS THE "PART ID" SCANNER.
7. IF DUAL SCANNERS, BOTH AS "ZONE ID", THEN SCANNER #1 IS FOR UPPER ZONES AND SCANNER #2 IS FOR LOWER ZONES.
- WIRING FROM EACH SCANNER TO PANEL TERMINALS BASED ON ORDER SPECIFICATION. EACH SCANNERS WIRING NOT TO OVERLAP AT PANEL TERMINALS BUT ALWAYS SEQUENCED AS SCANNER #1 OUTPUTS FIRST, FOLLOWED BY SCANNER #2 OUTPUTS.
 - TERMINAL WIRING FORMULA:
SCANNER #1 TERMINALS 16 TO $[(16 + "n") - 1]$, CONNECTED TO PANEL TERMINALS 1 TO "n",
WHERE "n" = NUMBER OF SPECIFIED ZONES FOR UPPER SCANNER.
SCANNER #2 TERMINALS 16 TO $[(16 + "nn") - 1]$, CONNECTED TO PANEL TERMINALS ("n" + 1) TO ("n" + "nn"),
WHERE "nn" = NUMBER OF SPECIFIED ZONES FOR LOWER SCANNER.
 - FOR EXAMPLE:
FOR UPPER SCANNER (SCNR1) ORDER SPECIFIED AS 4 ZONES, THEN WIRE SCANNER #1 TERMINALS 16, 17, 18, & 19 TO PANEL TERMINALS 1, 2, 3, & 4.
FOR LOWER SCANNER (SCNR2) ORDER SPECIFIED AS 3 ZONES, THEN WIRE SCANNER #2 TERMINALS 16, 17, & 18 TO PANEL TERMINALS 5, 6, & 7.
8. SCANNER PROGRAMMING:
- IF ONE "DISCRETE" SCANNER IS SPECIFIED FOR "ZONE ID" ONLY, THEN DOWNLOAD APPLICABLE PROGRAM TO SCANNER.
 - IF ONE "DISCRETE" SCANNER IS SPECIFIED FOR "PART ID" ONLY, THEN DOWNLOAD THE 6" X 3/4 RES. X 8 ZONE PROGRAM (FILE NAME "06-4-id8.PSF") FOR A 6" SCANNER. IF OTHER THAN 6" LENGTH, THEN GET CUSTOM PROGRAM FROM NORDSON ENGINEERING.
 - IF ONE "DISCRETE" SCANNER FOR BOTH "ZONE ID" AND "PART ID", THEN CUSTOM PROGRAMMING REQUIRED BY NORDSON ENGINEERING.
 - IF DUAL "DISCRETE" "ZONE ID" SCANNERS, ONE FOR UPPER "ZONE ID" AND ONE FOR LOWER "ZONE ID", THEN OUTPUT WIRING PER NOTE 6, AND DOWNLOAD APPLICABLE (LENGTH / RESOLUTION / # OF ZONES) PROGRAM TO EACH CONTROLLER.
 - IF ONE "ANALOG" SCANNER IS SPECIFIED, THEN DOWNLOAD THE ANALOG CONTROLLER PROGRAM (FILE NAME: ALG-2OUT.PSF). THIS PROGRAM APPLIES TO ALL LENGTHS OF SCANNER.
9. TIMER MODULE IS "NEGATIVE SWITCHING" TYPE AND MUST ONLY BE CONNECTED TO A "SINKING" ENCODER INPUT.
10. IMPRINT LABEL WITH THE FOLLOWING INFORMATION AND AFFIX TO THE OUTSIDE OF THE FRONT DOOR (TEXT TO BE .25 HIGH MIN.). FOR CUSTOMIZED VERSIONS OF THIS BOX, ADD SUFFIX "-MOD" TO THE PART NUMBER:
NORDSON CORPORATION
iCONTROL PART I.D
120V/1PH/60HZ/.6A
PN 1035897



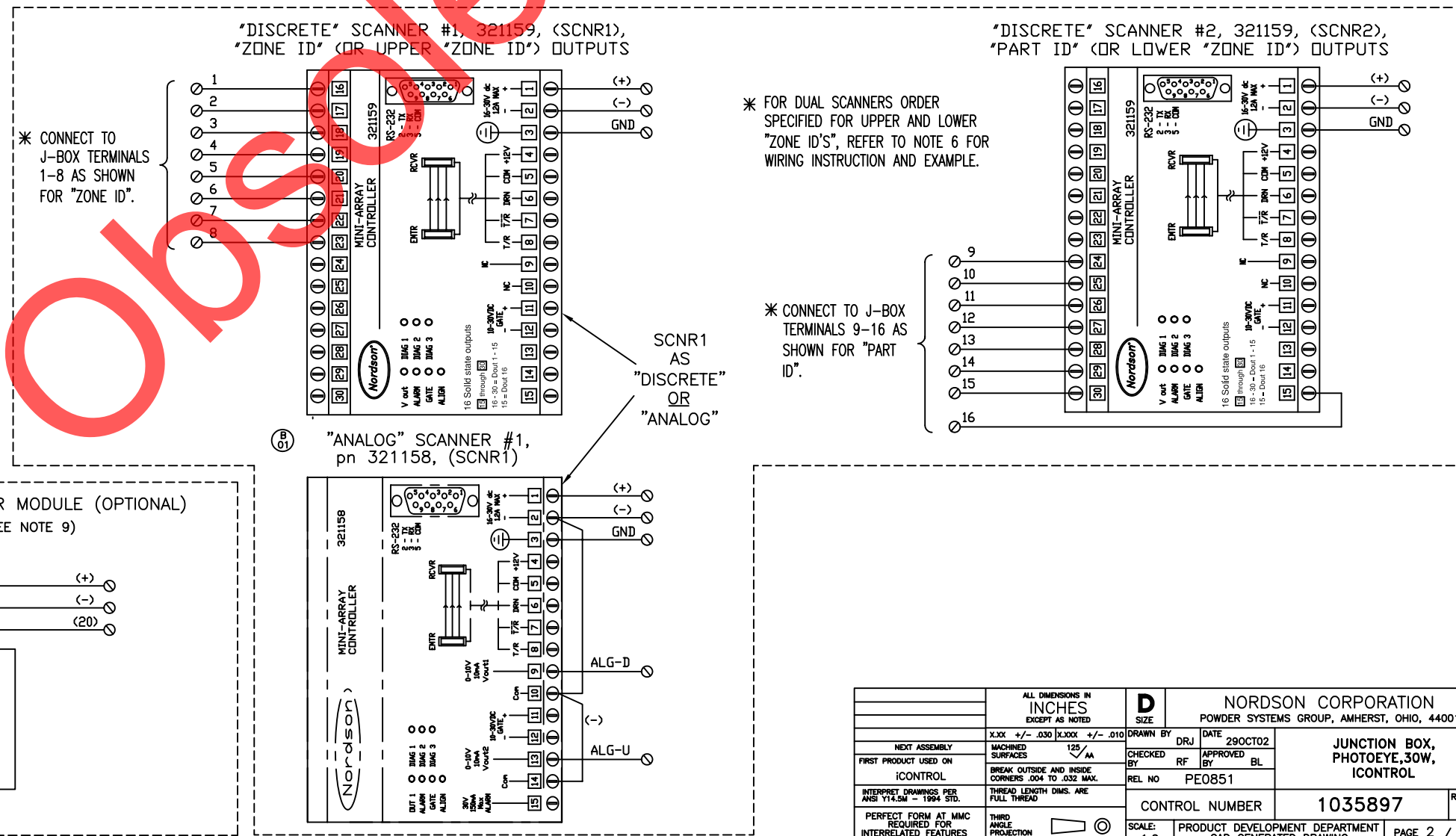
USE GRAY INSULATED WIRE (18 AWG MIN.) FOR ALL DC WIRING OTHER THAN POWER.

PEJB INTERNAL WIRING AND INSTRUCTION

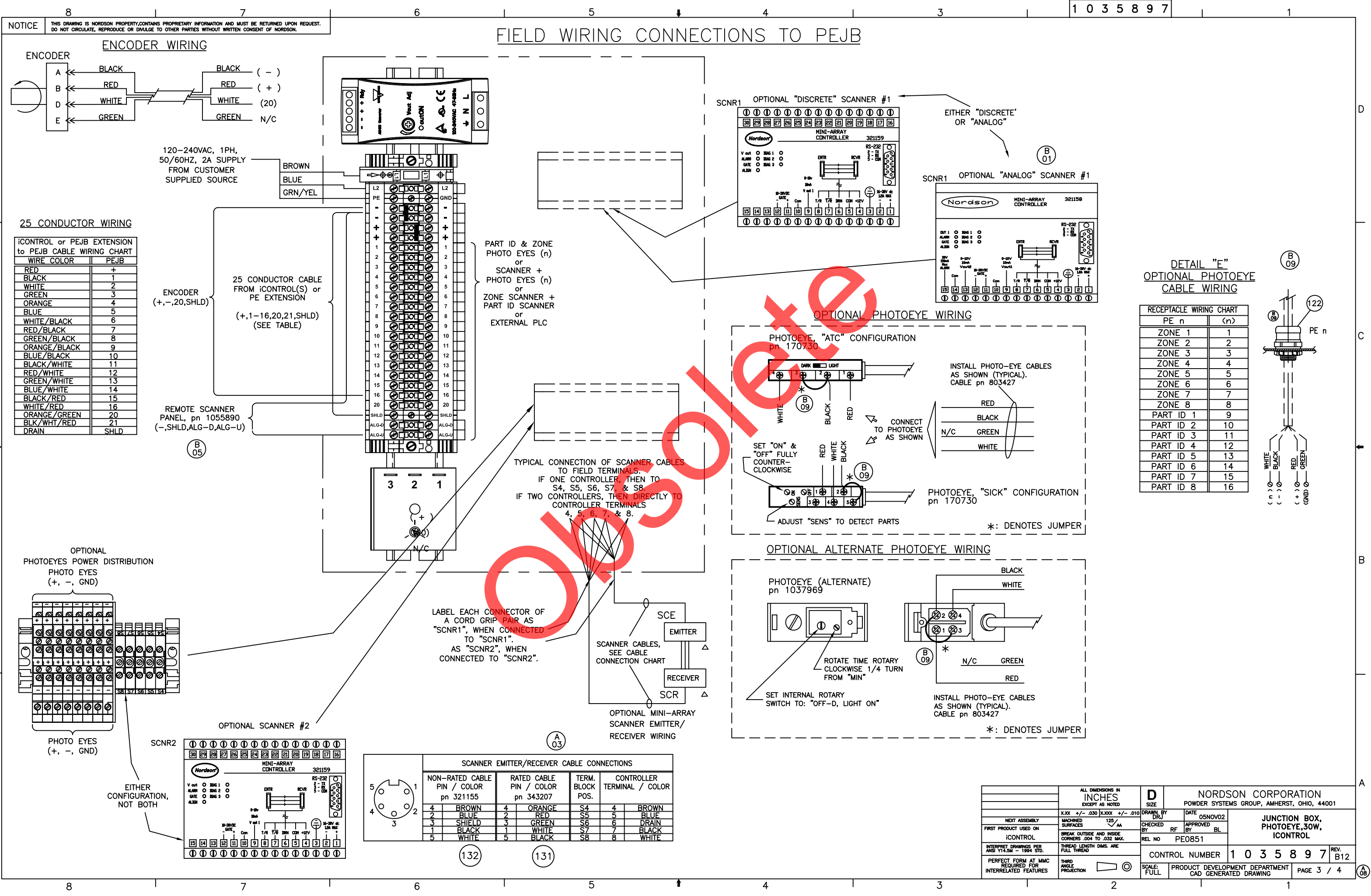
SINGLE SCANNER OPTIONS



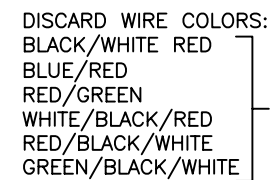
DUAL SCANNER OPTIONS



| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | NORDSON CORPORATION | |
|--------------------------------------------------------|--|--------------------------------------------|----------------|
| SIZE | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY DRJ | DATE 29OCT02 |
| MACHINED SURFACES | | CHECKED BY RF | APPROVED BY BL |
| FIRST PRODUCT USED ON | | REL NO PE0851 | |
| iCONTROL | | CONTROL NUMBER | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | 1035897 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | REV. B12 | |
| THIRD ANGLE PROJECTION | | SCALE: 1:2 | |
| | | PRODUCT DEVELOPMENT DEPARTMENT | |
| | | CAD GENERATED DRAWING | |
| | | PAGE 2 / 4 | |




✓ APPLY SHRINK TUBE
OVER WIRE ENDS



—SPACER & ADDITIONAL GASKET
NOT REQUIRED IF
RECTANGULAR CUTOUT
IN ENCLOSURE.

| | L2 | | | | | | | L2 | |
|--------------------|-------|--|--|--|--|--|--|-------|--|
| | PE | | | | | | | GND | |
| - | - | | | | | | | - | |
| - | - | | | | | | | - | |
| + | + | | | | | | | + | |
| + | + | | | | | | | + | |
| RED | 1 | | | | | | | 1 | |
| BLACK | 2 | | | | | | | 2 | |
| WHITE | 3 | | | | | | | 3 | |
| GREEN | 4 | | | | | | | 4 | |
| ORANGE | 5 | | | | | | | 5 | |
| BLUE | 6 | | | | | | | 6 | |
| WHITE/BLACK | 7 | | | | | | | 7 | |
| RED/BLACK | 8 | | | | | | | 8 | |
| GREEN/BLACK | 9 | | | | | | | 9 | |
| ORANGE/BLACK | 10 | | | | | | | 10 | |
| BLUE/BLACK | 11 | | | | | | | 11 | |
| BLACK/WHITE | 12 | | | | | | | 12 | |
| RED/WHITE | 13 | | | | | | | 13 | |
| GREEN/WHITE | 14 | | | | | | | 14 | |
| BLUE/WHITE | 15 | | | | | | | 15 | |
| BLACK/RED | 16 | | | | | | | 16 | |
| WHITE/RED | 20 | | | | | | | 20 | |
| ORANGE/GREEN | GND | | | | | | | GND | |
| SHIELD | GND | | | | | | | GND | |
| 14 GA GREEN/YELLOW | ALG-D | | | | | | | ALG-D | |
| | ALG-U | | | | | | | ALG-U | |

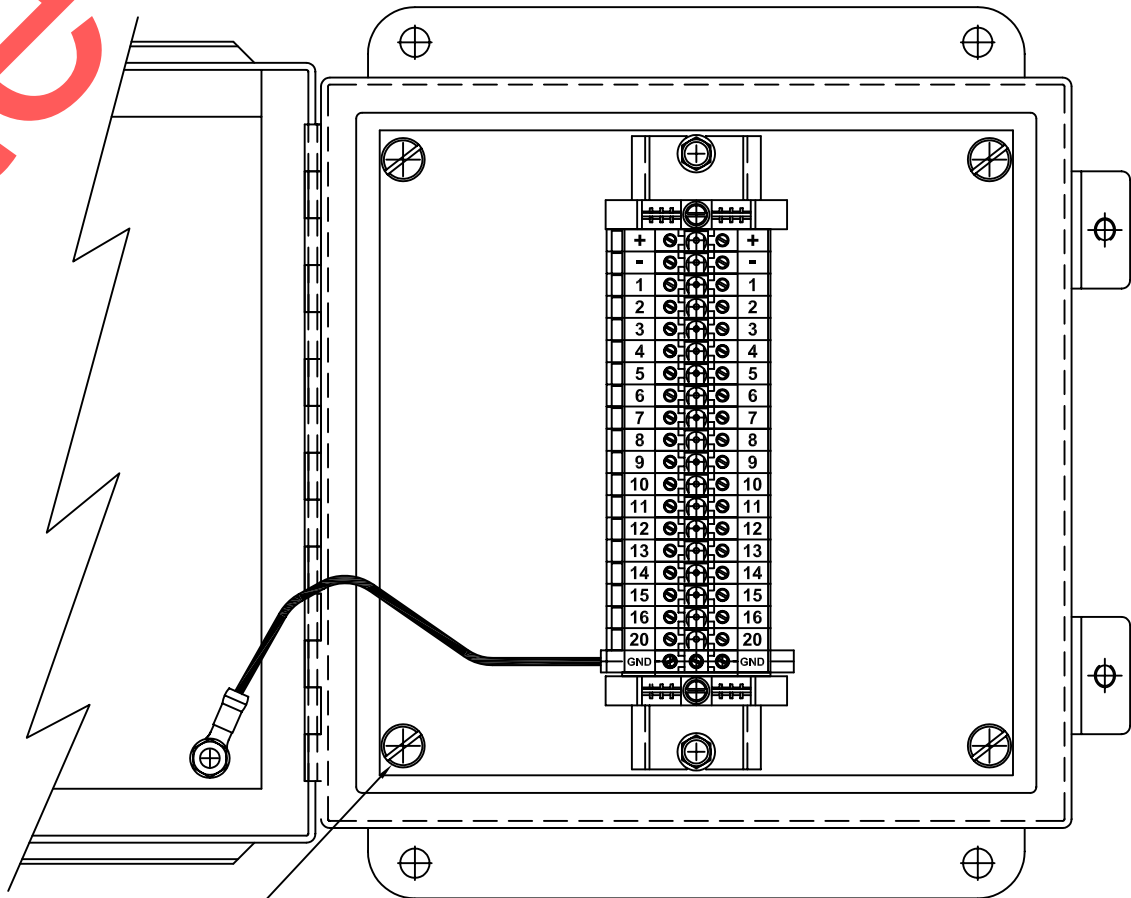
GROUND TO DOOR

| | | | | | | | |
|--------------------------------------------------------------|--|-----------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|-------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | X.XXX +/- .030 X.XXX +/- .010 MACHINED SURFACES $\frac{125}{1000}$ AA | | DRAWN BY LSM | | DATE 25SEP08 | |
| FIRST PRODUCT USED ON | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | CHECKED BY BL | | APPROVED BY BL | |
| INTERPRET DRAWINGS PER ANSI Y14.2M - 1994 STD. | | THIRD LENGTH DIMS. ARE FULL THREAD | | REL NO PE601281 | | JUNCTION BOX, PHOTOEYE, 30W, ICONTROL | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRDS ANGLE PROJECTION | |  | | CONTROL NUMBER 1035897 | |
| | | SCALE: FULL | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | REV. B12 PAGE 4 / 4 | |

| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|--------------|--------------------------------------------|-------|-------------------------|------------------|
| 0 | | | REF DWG,ASSY,EXT J-BOX,iCONTROL | 1 | | 1075835 |
| 1 | | A-808CH | ENCLOSURE, CONT HINGE,8x8x4 | 1 | HOFFMAN OR EQUIV. | 1056323 |
| 2 | | A8P8 | PANEL,6.75 X 6.88,FOR 8X8 ENCLOSURE | 1 | HOFFMAN ENGINEERING CO. | 1056324 |
| 3 | | 0514500000 | TBACCY,DIN,RAIL,SLOT,35x2M-LG | .17 M | WEIDMULLER | 239214 |
| 4 | | 1492-EAJ35 | ANCHOR,END | 2 | ALLEN BRADLEY | 306318 |
| 5 | | 1492-J4 | TERMINAL BLK,GRAY,IEC,30-12 AWG,J4 | 19 | ALLEN BRADLEY | 1075583 |
| 6 | | 1492-JG4 | TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 7 | | | SCR,HEX,SELF TAP,10-32X .500,Z | 2 | | 981137 |
| 8 | | | WASHER,LK,E,INT,#10,STL,ZN | 2 | | 983124 |
| 9 | | | LABEL,EXT J-BOX,iCONTROL | 1 | | 1075855 |
| 10 | | | LABEL,TERMINAL BLOCK,FOR 1035899 | 2 | | 1076700 |
| 11 | | | NUT,HEX,MACH,#10-32,BRASS | 2 | | 984129 |
| 12 | | | WASHER,FLT,E,.203X.406X.040,BR | 1 | | 983021 |
| 13 | | | WASHER,LK,E,SPT,#10,STL,NI | 1 | | 983120 |
| 14 | | | TERMINAL,RINGTONG,INS,16-14,10 | 1 | | 933054 |
| 15 | | | WIRE,VINYL,14AWG,GREEN W/YELLOW | 1 | | 931191 |
| 16 | | | LABEL,BLANK,3.500X5.00 | 1 | | 603348 |
| 17 | | | CARTON,MISC PARTS | 1 | | 602117 |

25 CONDUCTOR WIRING

| iCONTROL or PEJB EXTENSION to PEJB CABLE WIRING CHART | |
|----------------------------------------------------------|------|
| WIRE COLOR | PEJB |
| RED | + |
| BLACK | 1 |
| WHITE | 2 |
| GREEN | 3 |
| ORANGE | 4 |
| BLUE | 5 |
| WHITE/BLACK | 6 |
| RED/BLACK | 7 |
| GREEN/BLACK | 8 |
| ORANGE/BLACK | 9 |
| BLUE/BLACK | 10 |
| BLACK/WHITE | 11 |
| RED/WHITE | 12 |
| GREEN/WHITE | 13 |
| BLUE/WHITE | 14 |
| BLACK/RED | 15 |
| WHITE/RED | 16 |
| ORANGE/GREEN | 20 |
| | |
| DRAIN | GND |



SECURE PANEL WITH HDW
SUPPLIED WITH ENCLOSURE

NOTES:

- TO BE PACKAGED WITH ADEQUATE PROTECTION AND LABELED WITH NORDSON PART NUMBER AND CURRENT REVISION.
- AS AN ALTERNATE, PROVIDE A LABEL WITH THE FOLLOWING INFORMATION AND AFFIX TO THE OUTSIDE OF THE FRONT DOOR.

NORDSON CORPORATION
iCONTROL PART I.D.
P/N: 1035899

| | | | | | | | |
|--------------------------------------------------------------|--|-------------------------------------------------------|--|---------------------------|--|-------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY DRJ | | DATE 29OCT02 | |
| FIRST PRODUCT USED ON | | MACHINED SURFACES 125 AA | | CHECKED BY RF | | APPROVED BY BL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO PE0851 | | CONTROL NUMBER 1035899 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THREAD LENGTH DIMS. ARE FULL THREAD | | THIRD ANGLE PROJECTION | | REV. A05 | |
| | | | | SCALE: FULL | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | | | PAGE 1 / 1 | |

8 7 6 5 4 3 2 1 1055890

NOTICE THIS DRAWING IS NORDSON PROPERTY,CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST.
DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|--------------------------------------------|---------------|--------------------------------------------|-------|------------------------|------------------|
| 0 | | | REF DWG ASSY,SCANNER J-BOX,GUN POSITIONER | 1 | | 1081427 |
| 1 | | 832RB | ENCLOSURE, CONT HINGE,14x12x6, w/KNOCKOUTS | 1 | HOFFMAN | 1081440 |
| 2 | | | LABEL SET, SCANNER,GUN PSNR | 1 | | 1081458 |
| 3 | | 8002-ISO | TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88 | 1 | SAFETY LABEL SOLUTIONS | 1075692 |
| 4 | | | LABEL,IDENTIFICATION,1.00 X 2.00 | 1 | | 1005678 |
| 5 | | A14P12 | PANEL,12.75 X 10.88,FOR 14X12 ENCLOSURE | 1 | HOFFMANN | 1057271 |
| 6 | | 0514500000 | TBACCY,DIN,RAIL,SLOT,35x2M-LG | .50M | WEIDMULLER,INC | 239214 |
| 7 | | | SCR,HEX,SELF TAP,10-32X.500,Z | 6 | | 981137 |
| 8 | | | WASHER,LK,E,INT,#10, STL,ZN | 4 | | 983124 |
| 9 | | | WIRE,VINYL,14AWG,GREEN W/YELLOW | 4.5 | | 931191 |
| 10 | | F1X3LG6 | WIREDUCT, 1 X 3,PVC,GRAY,SLOTTED | 1FT | PANDUIT | 1090158 |
| 11 | | C1LG6 | COVER 1 | 1 | PANDUIT | 1046394 |
| 12 | | | PREFIX RESERVED | 1 | | 000000 |
| 13 | | 60317 | CONTROLLER,ANALOG,MINI-ARRAY | 2 | BANNER ENGINEERING | 321158 |
| 14 | | 1492-EAJ35 | ANCHOR,END | 3 | ALLEN BRADLEY | 306318 |
| 15 | | 1492-J4 | TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4 | 7 | ALLEN BRADLEY | 1075583 |
| 16 | | | MODULE GROUP,I/O,WAGO | 1 | WAGO | 1081423 |
| 17 | | 1492-JG4 | TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4 | 2 | ALLEN BRADLEY | 1075665 |
| 18 | | 1492-EBJ3 | BARRIER,TBACCY,END,DIN,GRAY,J-SERIES | 1 | ALLEN BRADLEY | 1075584 |
| 19 | | 1492-CULJ6-10 | JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN | 1 | ALLEN BRADLEY | 1078531 |
| 20 | | | TERMINAL RINGTONG,INS,16-14,10 | 1 | | 933054 |
| 21 | | | NUT,HEX,MACH,#10-32,BRASS | 2 | | 984129 |
| 22 | | | WASHER,FLT,E,SPT,#10,STL,NI | 1 | | 983120 |
| 23 | | | WASHER,FLT,E,.208 X.406 X.040,BR | 1 | | 983021 |
| 24 | | | CONNECTOR,STRAIN RELIEF,1/2 NPT | 4 | | 972808 |
| 25 | | | SEAL,CONDUIT FITTING,1/2,BLUE | 4 | | 939122 |
| 26 | | | NUT,LOCK,1/2 CONDUIT | 4 | | 984526 |
| 27 | | QDC-515C | CABLE,SCANNER,15 FT | A/R | BANNER ENG CORP | 321155 |
| 28 | | QDC-525C | CABLE,SCANNER,25 FT | A/R | BANNER ENG CORP | 321156 |
| 29 | | QDC-550C | CABLE,SCANNER,50 FT | A/R | BANNER ENG CORP | 321157 |
| 30 | | | LABEL SET,PANEL WIRING FOR 1055890 | 1 | | 1083082 |
| 31 | | | WIRE,105C,18GA,BLUE,600V | 10 | | 335174 |
| 32 | | | STRAP,CABLE,.875 DIA | 1 | | 939110 |
| 33 | | | MOUNT,CABLE STRAP | 1 | | 242837 |
| 34 | | UTPCH2 | CABLE,RJ45 TO RJ45,2FT | 1 | PANDUIT | 282960 |
| 35 | | MX5-F02 | CONNECTOR,ETHERNET,RJ45-TO-IDC,CAT5 | 1 | SIEMON | 1058224 |
| 36 | | MX-SM1-02 | BOX,SURFACE MOUNT,ETHERNET | 1 | SIEMON | 1078555 |
| 37 | | | BOX,CARDBOARD,20.0 L X 13.5 W X 8.0 D | 1 | | 603124 |
| 38 | | | LABEL,BLANK | 1 | | 603348 |
| 39 | | | PREFIX RESERVED | 1 | | 000000 |
| 40 | (OPTIONAL 2nd BOOTH ETHERNET SWITCH BOM) | | | | | |
| 41 | | 8918-13 | WIRE,105C,18GA,BLUE,600V | 1.0FT | BELDEN | 335174 |
| 42 | | 2891929 | SWITCH,ETHERNET,8 PORT,10/100 | 1 | PHOENIX | 1103899 |
| 43 | | UTPCH2 | CABLE,RJ45 TO RJ45,2FT | 1 | PANDUIT | 282960 |
| 44 | | MX5-F02 | CONNECTOR,ETHERNET,RJ45-TO-IDC,CAT5 | 1 | SIEMON | 1058224 |
| 45 | | MX-SM1-02 | BOX,SURFACE MOUNT,ETHERNET | 1 | SIEMON | 1078555 |
| 46 | | 8916-189 | WIRE,VINYL,14AWG,GREEN W/YELLOW | 6.5FT | BELDEN | 931191 |
| 47 | | PLT1M | CABLETIE,3.9 IN,185F/85C,NYLON,NATURAL | 1 | PANDUIT | 939110 |

△-WHEN CONNECTOR OPTION IS USED, THIS ITEM IS CONNECTED TO ETHERNET CONNECTOR, ITEM 60.

★-THESE ITEMS SHIP LOOSE WITHIN THE PANEL.

★ITEM 16 I/O MODULE GROUP COMPONENT BREAKDOWN.

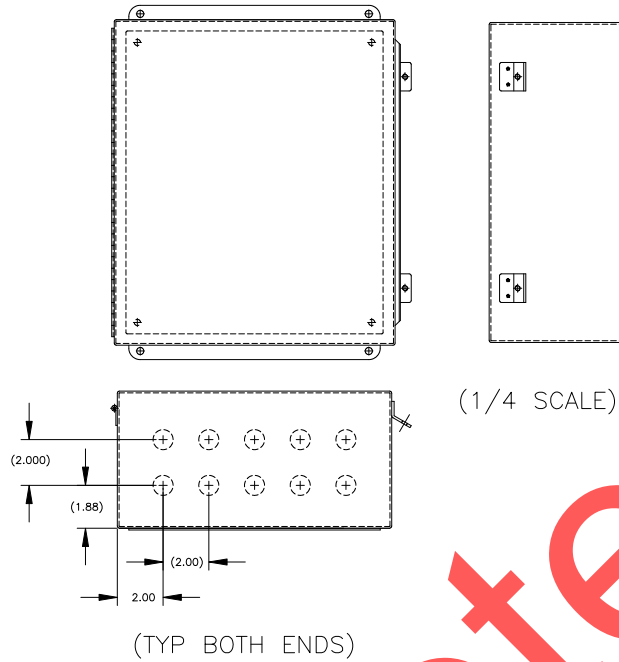
| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|------------------------------------|-----|------|
| 750-342 | COUPLER,FIELDBUS,ETHERNET TCP/IP | 1 | WAGO |
| 750-468 | MODULE,ANALOG INPUT,0-10,4 CHANNEL | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |

ICONTROL GMVR
SCANNER J-BOX
24VDC
p/n 1055890

DOOR LABEL

ICONTROL GMVR
SCANNER J-BOX
24VDC
p/n 1055890

HAZARD TAG



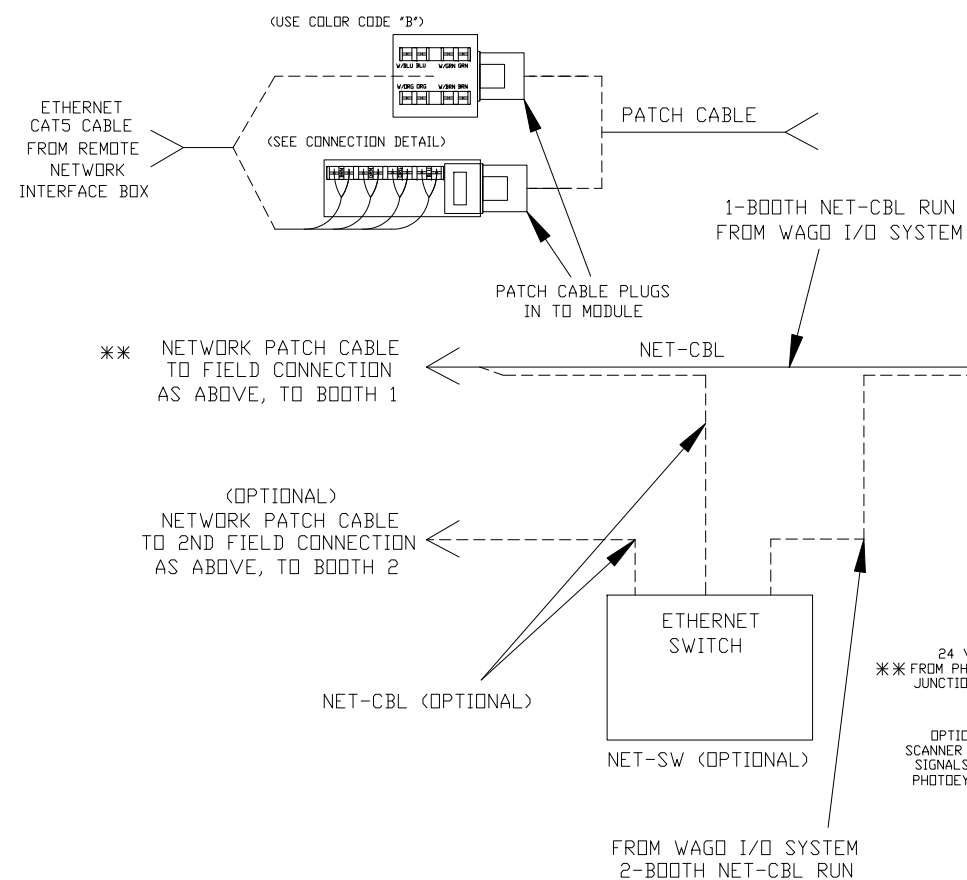
TERMINAL BLOCK LAYOUT

| |
|----------|
| - |
| - |
| + |
| + |
| PE / GND |
| GND |
| ALG-D |
| ALG-U |

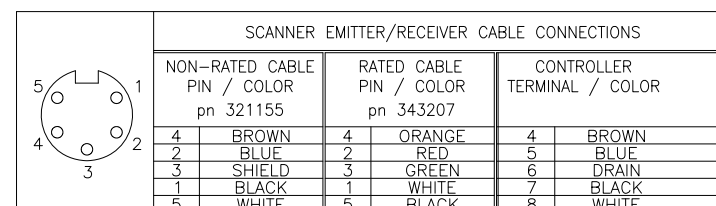
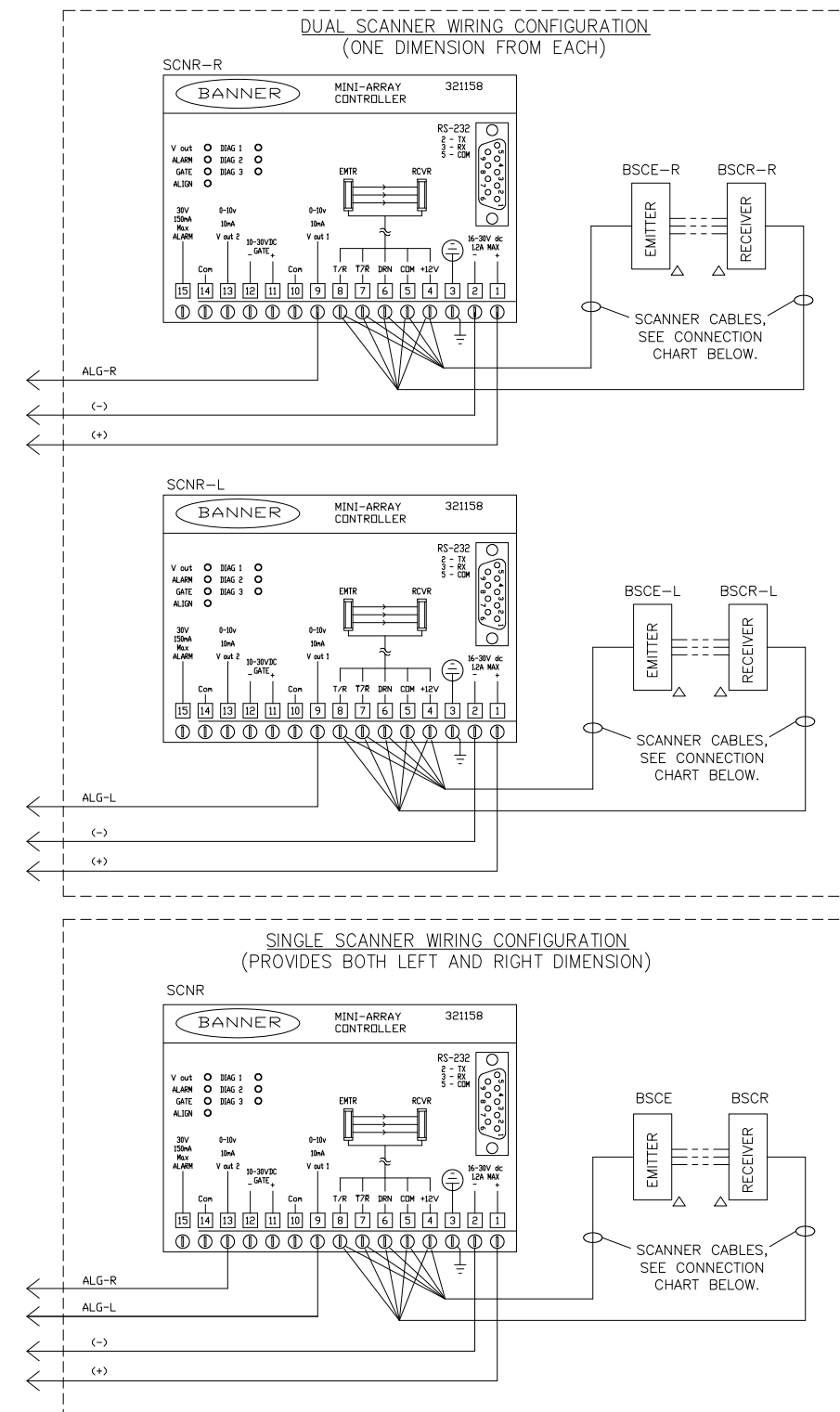
MODULE GROUP LAYOUT


| |
|---------|
| 750-600 |
| 750-468 |
| 750-342 |

| | | | | |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------|-----------------------------------------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY TAH | DATE 21MAY04 | J-BOX,SCANNER, GUN POSITIONER, iCONTROL |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125/AA | CHECKED BY JCAT | APPROVED BY JB | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. THREAD LENGTH DIMS. ARE FULL THREAD | REL NO PE37282 | CONTROL NUMBER 1055890 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE 1/2 | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | REV. A17 PAGE 1 / 3 |

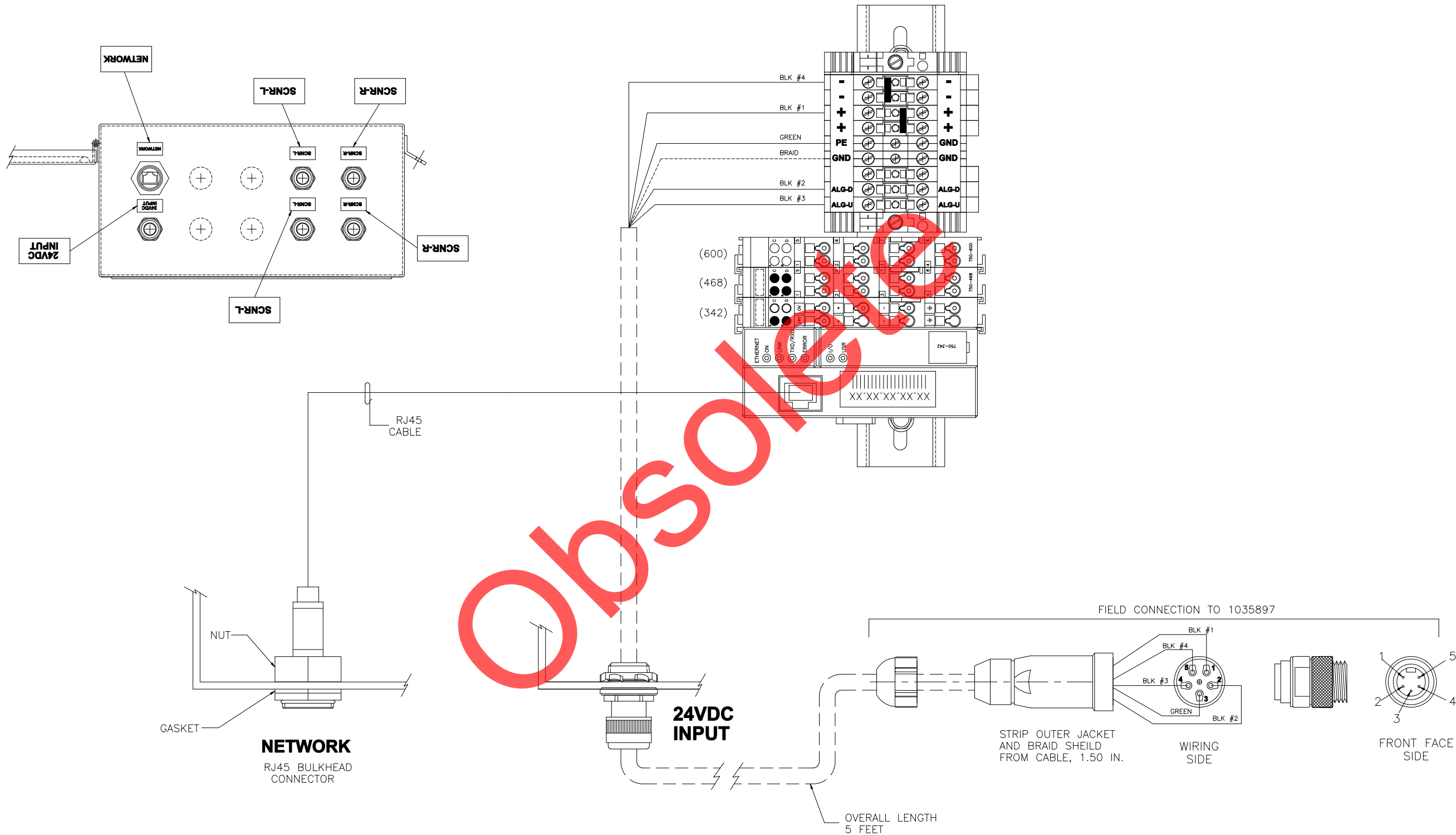


** SEE SHEET 3 FOR CONNECTOR OPTION



| | | | | | | | |
|--------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">D</div> <div>SIZE</div> </div> | | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">NORDSON CORPORATION</div> <div>POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001</div> </div> | |
| | | XXX +/- .030 [X.XXX +/- .010] | | DRAWN BY | | TAMAYO4 | |
| NEXT ASSEMBLY | | MACHINED SURFACES 125 AA | | CHECKED BY | | J-BOX, SCANNER, GUN POSITIONER, ICONTROL | |
| FIRST PRODUCT USED ON | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | | PC37282 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1984 STD. | | THREAD LENGTH DIMS. ARE FULL LENGTH | | CONTROL NUMBER | | 1055890 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION  | | SCALE: NTS | | <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">PRODUCT DEVELOPMENT DEPARTMENT</div> <div>CAD GENERATED DRAWING</div> </div> | |
| | | | | | | PAGE 2 / 2 | |

CONNECTORS OPTION



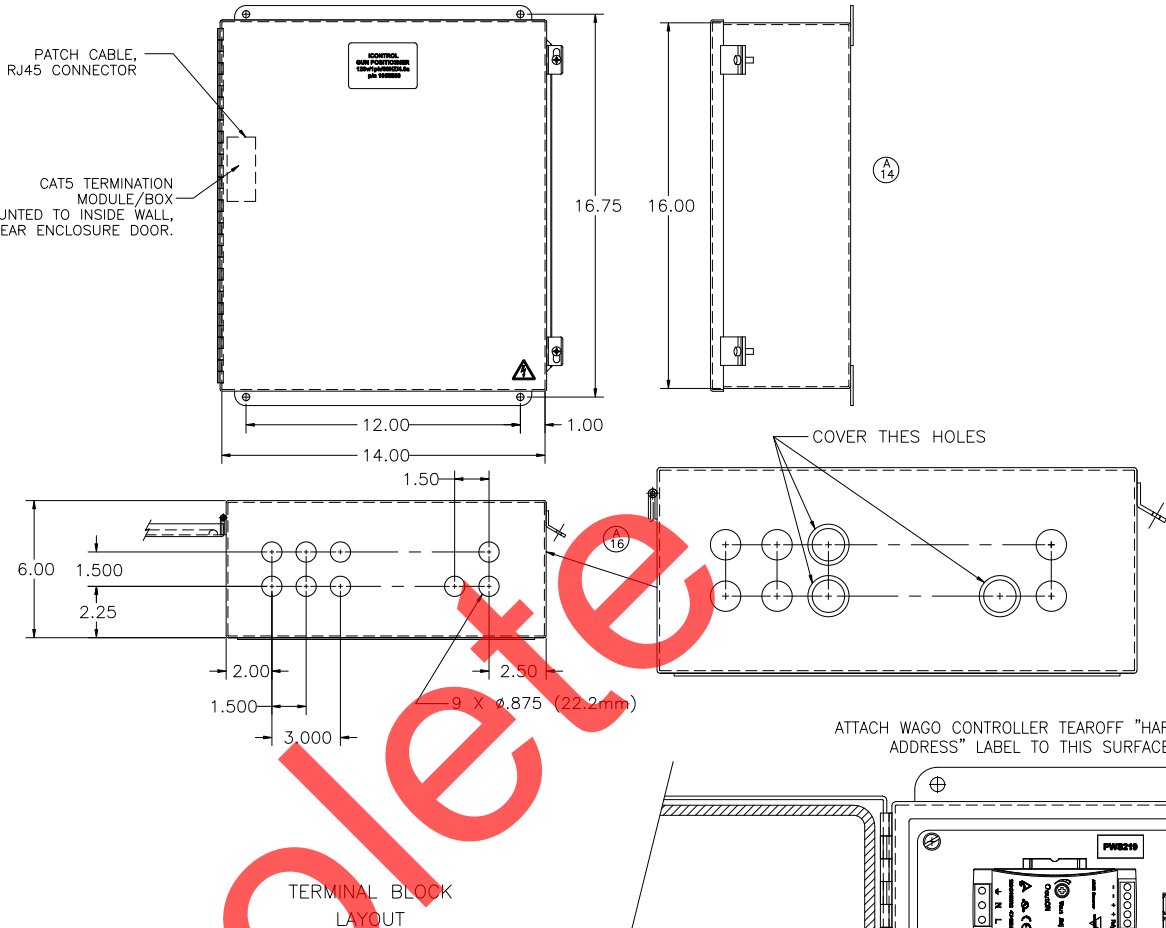
| | | | | | |
|--------------------------------------------------------|--|------------------------|--|------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D | | NORDSON CORPORATION | |
| X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY LSM | | DATE 12APR07 | |
| MACHINED SURFACES 125 / AA | | CHECKED BY BL | | APPROVED BY BL | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO SC300714 | | J-BOX,SCANNER, GUN POSITIONER, iCONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | CONTROL NUMBER | | 1055890 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | SCALE: FULL | |
| | | | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 3 / 3 | |

LABEL IDENTIFICATION, 1.00 X 2.00

NOTICE

THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

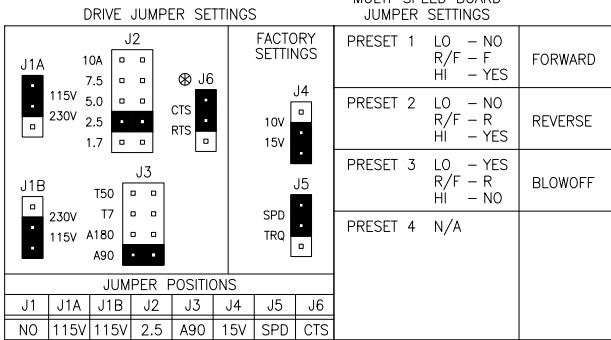
| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|---------------------|-------------------------------------------------|------|------------------------|------------------|
| 0 | | | REF DWG, ASSY PANEL, GUN POSITIONER | 0 | | 1078407 |
| 1 | | A-1614CH | ENCLOSURE, CONT HINGE, 16x14x6 | 1 | HOFFMAN | 1078420 |
| 2 | | CUSTOM | LABEL SET, GUN POSITIONER | 1 | ----- | 1078684 |
| 3 | | 8002-ISO | TAG, WARNING, ELECT SHOCK HAZARD, 1.00x.88 | 1 | SAFETY LABEL SOLUTIONS | 1075692 |
| 4 | | | LABEL IDENTIFICATION, 1.00 X 2.00 | 1 | | 1005678 |
| 5 | | 0514500000 | TBACCY, DIN RAIL, SLOT, 35x2M-LG | .49M | WEIDMULLER, INC | 239214 |
| 6 | | | SCR, HEX, SELF TAP, 10-32X .500, Z | 6 | | 981137 |
| 7 | | A-16P14 | ENCLACCY, PANEL, 14.75x12.88, 14GA | 1 | HOFFMAN | 1078422 |
| 8 | | F1x3LG6 | WIREDUCT, 1 X 3, PVC, GRAY, SLOTTED | 1FT | PANDUIT | 1090158 |
| 9 | GROUND | PK7GTA | GROUND TERMINAL | 1 | SQUARE D | 1046405 |
| 10 | SC210 | KBMG-212D WITH 8833 | CONTROLLER, DC DRIVE W/ SP BD, GUN PSNR | 1 | KB ELECTRONICS | 1046921 |
| 11 | | | SCR, HEX, SELF TAP, SLTD, 8-32X.50, TYPE T,Z | 4 | | 1083981 |
| 12 | CB207 | 1DU10 | CIRCUIT BREAKER, 1 POLE, 10 AMP, 10-20 xl n | 1 | ALTECH | 1078518 |
| 13 | CB210 | 1CU4 | CIRCUIT BREAKER, 1 POLE, 4 AMP, 5-10 xl n | 1 | ALTECH | 1078516 |
| 14 | PWS219 | SPD24301 | POWER SUPPLY, DIN RAIL, MT. 30W, 24-28VDC | 1 | CARLO GAVAZZI | 1080749 |
| 15 | | | MODULE GROUP, 1/O, WAGO | 1 | WAGO | 1078669 |
| 16 | | C1LG6 | COVER, 1 | 1FT | PANDUIT | 1046394 |
| 17 | FU217 | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4 X 1-1/4" FUSES | 1 | ALLEN BRADLEY | 341366 |
| 18 | FU217 | MDL-1-R | FUSE, 2AMP, SLOBL0, 250V, 3AG, 313 | 1 | BUSSMANN | 939016 |
| 19 | FU217 | 1492-N37 | END, PLATE, AB FUSE | 1 | ALLEN BRADLEY | 341367 |
| 20 | | 1492-J4 | TERMINAL BLK, GRAY, IEC, 22-10 AWG, JG4 | 30 | ALLEN BRADLEY | 1075583 |
| 21 | | 1492-EAJ35 | ANCHOR, END | 2 | ALLEN BRADLEY | 306318 |
| 22 | CR242 | CR242 | RELAY, TERM BLK, SPD, 110/125V AC/DC | 1 | ALLEN BRADLEY | 1071600 |
| 23 | | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, IEC, 22-10 AWG, JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 24 | | 1492-J4-Y | TERMINAL BLK, YELLOW, IEC, 22-10 AWG, JG4 | 2 | ALLEN BRADLEY | 1075694 |
| 25 | | 1492-EBJ3 | BARRIER, TBACCY, END, DIN, GRAY, J SERIES | 2 | ALLEN BRADLEY | 1075584 |
| 26 | | | WIRE, 105C, 18GA, BLUE, 600V | 31.5 | | 335174 |
| 27 | | | STRND WIRE, 14 AWG, YEL, 600V, 105C | 3 | | 1079956 |
| 28 | | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 4.75 | | 931191 |
| 29 | | | WIRE, VINYL, 14AWG, RED | 7.5 | | 931296 |
| 30 | | | WIRE, VINYL, 14AWG, WHITE | 3 | | 931268 |
| 31 | | | WIRE, VINYL, 18AWG, RED | 9 | | 931170 |
| 32 | | | STRAP, CABLE, .875 DIA | 7 | | 939110 |
| 33 | | UTPCH2 | CABLE, RJ45 TO RJ45, 2FT | 1 | PANDUIT | 282960 |
| 34 | | MX5-F02 | CONNECTOR, ETHERNET, RJ245-TO IDC, CAT5 | 1 | SIEMON | 1058224 |
| 35 | | MX-SM1-02 | BOX, SURFACE MOUNT, ETHERNET | 1 | SIEMON | 1078555 |
| 36 | | | TERMINAL, RINGTONG, INS, 16-14, 10 | 1 | | 933054 |
| 37 | | | NUT, HEX, MACH, #10-32, BRASS | 2 | | 984129 |
| 38 | | | WASHER, LK, E, SPT, #10, STL, NI | 1 | | 983120 |
| 39 | | | WASHER, FLT, E, .203X.406X.040, BR | 1 | | 983021 |
| 40 | | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | ALLEN BRADLEY | 1078531 |
| 41 | | | QUICKCONN, INS, FEM, .250"X.032", 14-16AWG | 4 | | 1049966 |
| 42 | | | TERMINAL, FLG, SPADE, INS, 16-14, 6 | 1 | | 933184 |
| 43 | | | LABEL SET, PANEL WIRING FOR 1055889 | 1 | | 1079873 |
| 44 | | | WASHER, LK, E, INT, #10, STL, ZN | 4 | | 983124 |
| 45 | | | LABEL, BLANK, 3.00X5.00 | 1 | | 603348 |
| 46 | | | MOUNT, CABLE STRAP | 1 | | 242837 |
| 47 | | | CONTROLLER, PROGRAMMED, GUN POS'R iCONTROL | 1 | | 1055963 |
| 48 | | | CAP, FLUSH, 7/8 DIA | 3 | | 900809 |



★ CUT JUMPER AS REQUIRED FOR REQUIRED LENGTHS.

***ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.**

| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |



⊗ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

| MULTI SPEED BOARD POT | %CLOCKWISE |
|-----------------------|------------|
| PRE 1 | 50-100% |
| PRE 2 | 50-100% |
| PRE 3 | 50% |
| PRE 4 | N/A |

| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |

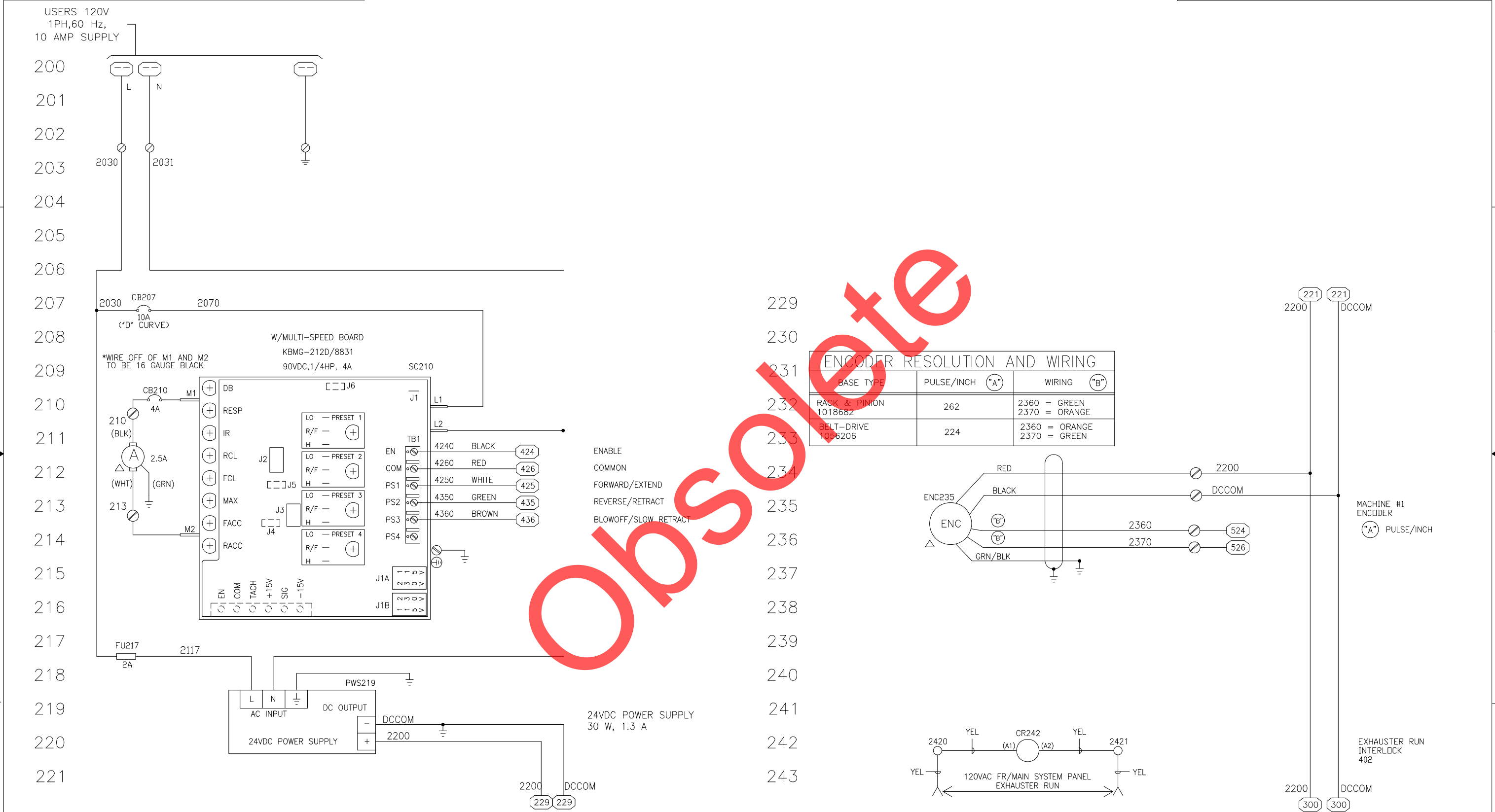
ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

NOTE:

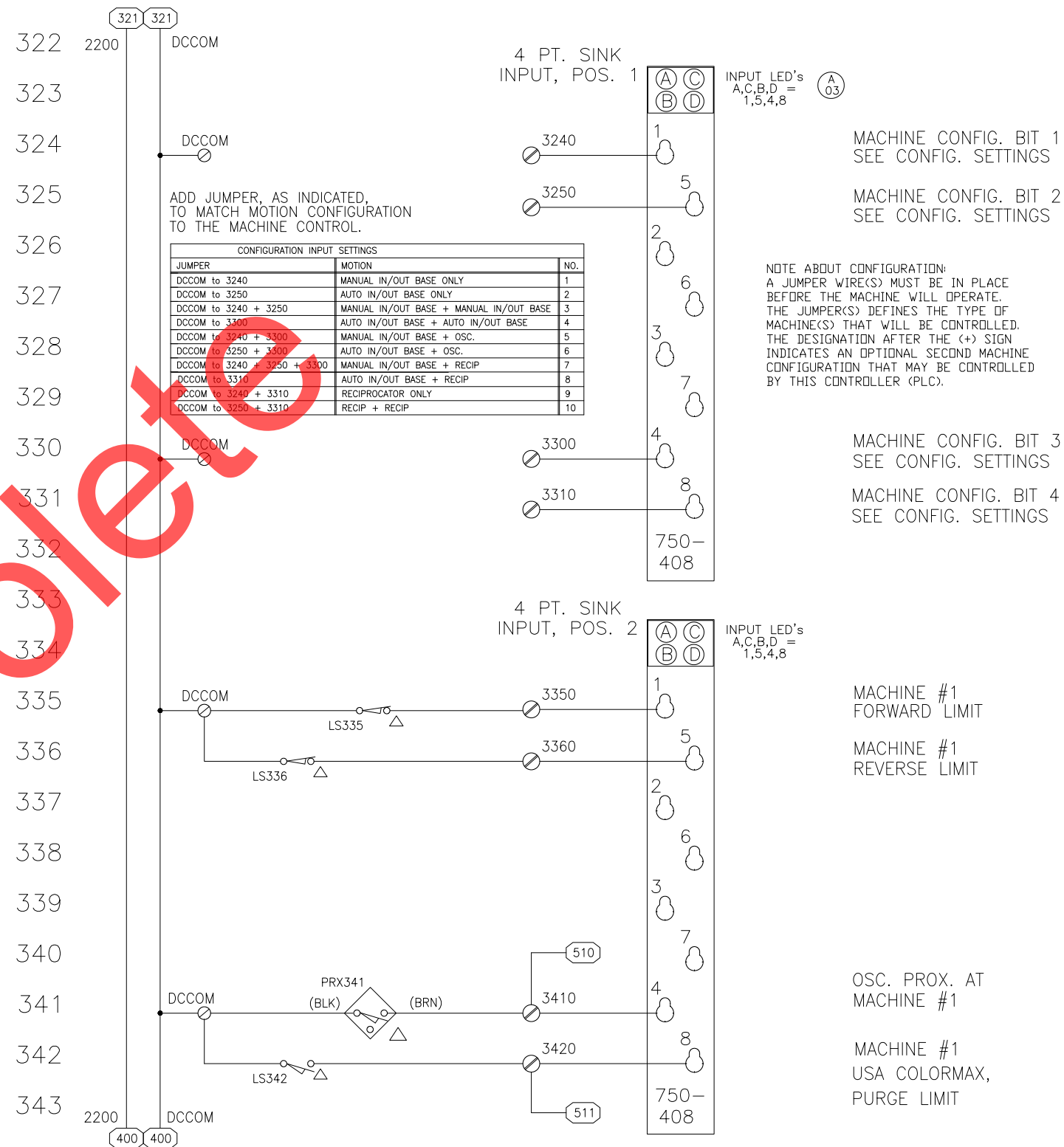
ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.


| ITEM | ICT | PART NO. | DESCRIPTION | QTY. |
|--------------------------------------------------------|------------------------|----------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------|
| 1056206 | | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 | CHECKED BY | DATE |
| FIRST PRODUCT USED ON | IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE37282 |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THIRD ANGLE PROJECTION | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | 1055889 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | | SCALE: FULL | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING |
| | | | | REV. A16 |

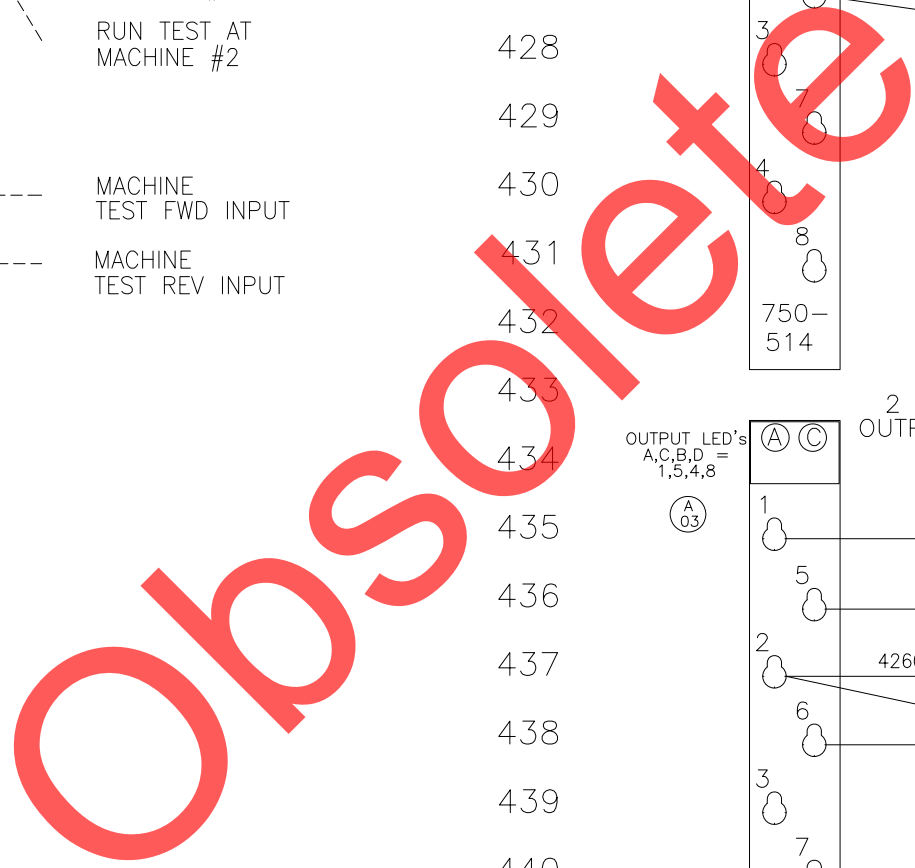





| CONFIGURATION INPUT SETTINGS | | |
|------------------------------|-----------------------------------------|----|
| JUMPER | MOTION | N |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCATOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |

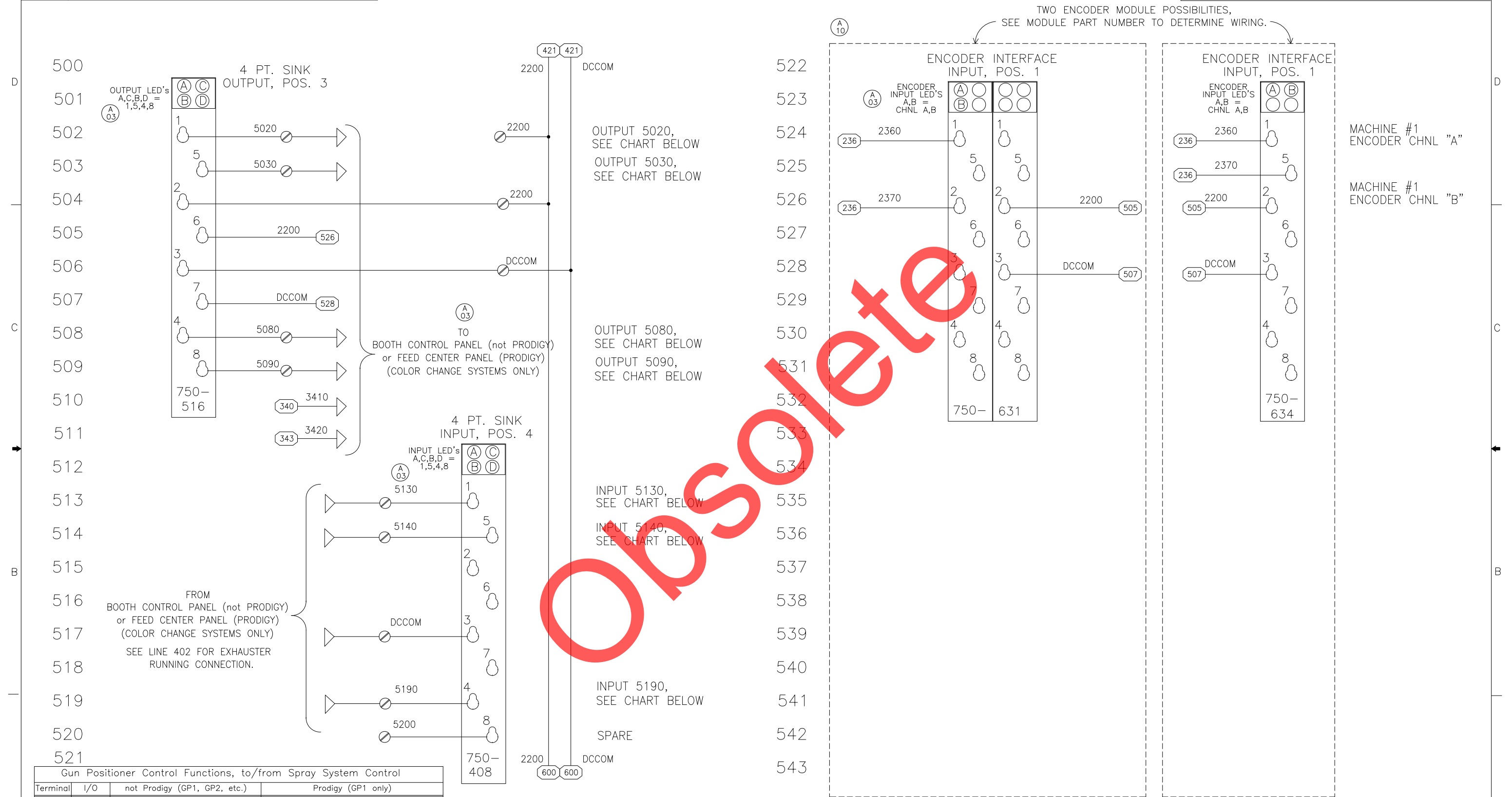


| | | | | | | | | | |
|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------|---------------------------------------------------------|----------------|-------------------------------------------------------------------|------------|--|----------|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | |
| 1056206 | XXX +/- .030 | XXXX +/- .010 | DRAWN BY BL | | DATE 26JUL04 | CONTROL PANEL, GUN POSITIONER, iCONTROL | | | |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 A | CHECKED BY -- | | APPROVED BY BL | | | | |
| FIRST PRODUCT USED ON IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | | PE37282 | | | | |
| INTERPRET DRAWINGS PER ANSI Y4.5M - 1994 STD. | THREAD LENGTH DIMS. ARE EFFECTIVE TO THE END OF THREAD | | CONTROL NUMBER | | | 1055889 | | | REV. A16 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION |  | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | | PAGE 3 / 6 | | |



| | | | | | | | |
|--------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | <div style="display: inline-block; border: 1px solid black; padding: 2px;">D</div> <div style="display: inline-block; vertical-align: middle;">SIZE</div> | | <div style="text-align: center;">NORDSON CORPORATION</div> <div style="text-align: center;">POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001</div> | |
| 1056206 | | X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY BL | | DATE 26JUL04 | |
| NEXT ASSEMBLY | | MACHINED SURFACES 125 AA | | CHECKED BY -- | | APPROVED BY BL | |
| FIRST PRODUCT USED ON | | BENKERS .004 AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | | PC37282 | |
| IN-OUT POSITIONER | | | | CONTROL NUMBER | | 1055889 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL LENGTH | | | | REV. A16 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION  | | SCALE: NTS PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 4 / 6 | |


| | |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-----------------------------------------|
| Terminal | I/O | not Prodigy (GP1, GP2, etc.) | Prodigy (GP1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | * Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control (all GP's) |
| 5080 | OUTPUT | Ready for Color Change | Color Change Start From iControl |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

* "Mechanical Brake Control" function active if vertical gun positioner.
If Oscillator, then brake function is disabled, positioner is not vertical.

LEGEND
 - REMOTELY LOCATED DEVICE
 - GUNMOVER PANEL TERMINAL

| | | | | | | | |
|--------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------|--|------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------|-----------------|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE DRAWN BY BL DATE 26JUL04 | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| 1058206 | X.XX +/- .030 | X.XXX +/- .010 | | CHECKED BY -- | APPROVED BY BL | CONTROL PANEL, GUN POSITIONER, iCONTROL | |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 ✓ AA | | REL NO | PE37282 | | |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | | CONTROL NUMBER | | 1055889 | REV. A16 |
| IN-OUT POSITIONER | THREAD LENGTH DIMS. ARE FULL THREAD | | | | | | |
| INTERPRET DRAWINGS PER ANSI 174.5M - 1994 STD. | | | | | | | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION |  | | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 5 / 6 | |



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1055889

LEGEND
△ - REMOTELY LOCATED DEVICE
○ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|----------------|-------------------------------------------------------------------|-------------|----------|
| | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | D | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | |
| 1056206 | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | BL | DATE | 26JUL04 |
| NEXT ASSEMBLY | MACHINED SURFACES 125 / AA | CHECKED BY | -- | APPROVED BY | BL |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE37282 | | |
| IN-OUT POSITIONER | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1055889 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | REV. A16 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | | | PAGE 6 / 6 | |

USERS 120V
1PH, 60 Hz,
10 AMP SUPPLY

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END-OF-TRAVEL LIMIT SENSOR INSTALLATION NOTES:

- "FORWARD LIMIT": THE FORWARD LIMIT IS THAT NEAREST THE SPRAY BOOTH.
- "REVERSE LIMIT": THE REVERSE LIMIT IS THAT FARTHEST FROM THE SPRAY BOOTH.
- BOTH LIMITS MUST BE CONNECTED "NORMALLY CLOSED" TURNING ON THE RELAY (AND INPUT) UNTIL THE LIMIT IS MADE.
- A 120VAC LIMIT SWITCH CONNECTION IS SHOWN. A 2-WIRE AC PROX SENSOR WOULD ALSO CONNECT AS SHOWN.
- IF THE SENSOR OPERATES AT 24VDC AND HAS A "NORMALLY CLOSED" SINKING OUTPUT, THEN APPLY POWER TO THE SENSOR FROM DCCOM AND 2200. CONNECT THE FORWARD SENSOR OUTPUT TO TERMINAL 3350. CONNECT THE REVERSE SENSOR OUTPUT TO TERMINAL 3360.
- IF THE 24VDC SENSOR HAS ONLY A SOURCING OUTPUT, THEN CHANGE RELAYS CR209 AND CR210 TO 24VDC TYPE. REWIRE THE DC RELAY COIL TO "DCCOM" AND CONNECT THE SENSOR OUTPUTS TO THE RELAY COIL. OR, CHANGE THE SENSOR TO A LIMIT SWITCH AND WIRE 120VAC AS SHOWN.

MOVEMENT CONTROL DEVICE INSTALLATION NOTES:

- "ENABLE": IF A MOTOR IS THE METHOD OF MACHINE MOVEMENT AND A SPEED CONTROLLER PROVIDES THE FORWARD/REVERSE DIRECTIONAL CONTROL, THEN AN DRIVE ENABLE CIRCUIT MAY BE REQUIRED. CONNECT 2120 AND 2121 TO THE SPEED CONTROLLER ENABLE CIRCUIT. WHEN CR424 IS ENERGIZED THEN THE SPEED CONTROLLER WOULD BE ENABLED FOR FORWARD AND REVERSE OPERATIONS. ENABLE IS ENERGIZED WHEN ICONTROL GUN POSITIONER MODE IS SET TO AUTO OR MANUAL.
- "FORWARD": CONNECT 2130 AND 2131 TO THE FORWARD DIRECTION CONTROL DEVICE OR SPEED CONTROLLER INPUT. WHEN CR425 IS ENERGIZED THEN THE POSITIONER WOULD MOVE FORWARD TOWARD THE SPRAY BOOTH.
- "REVERSE": CONNECT 2140 AND 2141 TO THE REVERSE DIRECTION CONTROL DEVICE OR SPEED CONTROLLER INPUT. WHEN CR430 IS ENERGIZED THEN THE POSITIONER WOULD MOVE REVERSE AWAY FROM THE SPRAY BOOTH.
- "BRAKE": CONNECT 2150 AND 2151 TO ENERGIZE AND THEREFORE OPEN A MECHANICAL BRAKE DEVICE. WHEN CR431 IS ENERGIZED THE BRAKE WOULD OPEN.

INSTALLATION EXAMPLE FOR A 120VAC SOLENOID VALVE:

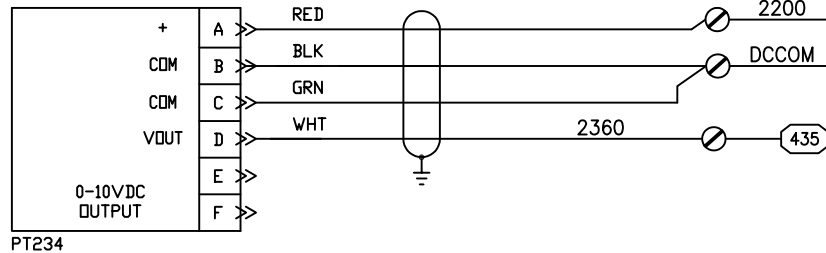
- CONNECT A WIRE FROM TERMINAL 2070 TO 2130, 2140, AND 2150. THIS APPLIES 120 VAC TO THE CONTROL DEVICE CIRCUITS.
- CONNECT 2131 TO ONE TERMINAL OF THE FORWARD SOLENOID. CONNECT 2141 TO ONE TERMINAL OF THE REVERSE SOLENOID.
- CONNECT 2151 TO ONE TERMINAL OF THE BRAKE SOLENOID (IF REQUIRED).
- CONNECT 2031 TO THE REMAINING (COMMON) TERMINAL ON ALL SOLENOIDS TO COMPLETE THE ELECTRICAL CIRCUIT.

INSTALLATION EXAMPLE FOR A 24VDC SOLENOID VALVE:

- CONNECT A WIRE FROM TERMINAL 2200 TO 2130, 2140, AND 2150. THIS APPLIES 24VDC TO THE CONTROL DEVICE CIRCUITS.
- CONNECT 2131 TO THE (+) TERMINAL OF THE FORWARD SOLENOID. CONNECT 2141 TO THE (+) TERMINAL OF THE REVERSE SOLENOID.
- CONNECT 2151 TO THE (+) TERMINAL OF THE BRAKE SOLENOID (IF REQUIRED).
- CONNECT DCCOM TO THE NEGATIVE TERMINAL ON ALL SOLENOIDS TO COMPLETE THE ELECTRICAL CIRCUIT.

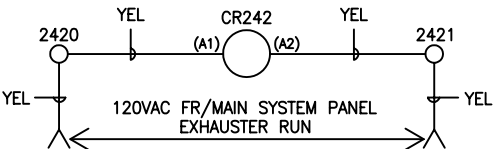
TRANSDUCER INSTALLATION NOTES:

- THE POSITION TRANSDUCER MUST BE MOUNTED AT THE REAR (REVERSE LIMIT) END OF THE POSITIONER BASE. CABLE WILL EXTEND WHEN MOVEMENT IS FORWARD.
- MOUNT SO THAT THE CABLE IS NOT QUITE FULLY RETRACTED IN TO THE TRANSDUCER WHEN THE POSITIONER CARRIAGE IS AT ITS MAXIMUM MECHANICAL REVERSE POSITION
- MAKE SURE THAT THE MAXIMUM CABLE EXTENSION OF THE POSITION TRANSDUCER IS GREATER THAN THE MAXIMUM STROKE LENGTH OF THE GUN POSITIONER PLUS THE AMOUNT OF CABLE EXPOSED WHEN THE CARRIAGE IS AT ITS MAXIMUM MECHANICAL REVERSE POSITION.



ICONTROL CONFIGURATION PARAMETER NOTES:

- SET THE ENCODER SCALE VALUE ON THE ICONTROL GUN POSITIONER CONFIGURATION SCREEN TO "1".
- SET THE REVERSE LIMIT VALUE ON THE ICONTROL GUN POSITIONER CONFIGURATION SCREEN TO A NUMBER EQUAL TO THE "MEASURED" FULL STROKE TRAVEL DISTANCE OF THE GUN POSITIONER.



221 221
2200 DCCOM

POSITION TRANSDUCER
FULL STROKE OF CABLE
EQUALS 0-10VDC OUTPUT

EXHAUSTER RUN
INTERLOCK
402

2200 DCCOM
300 300

FORWARD LIMIT
335
REVERSE LIMIT
336

CR424 ENABLES A MOTOR
SPEED CONTROLLER (OPTIONAL)
CR425 ACTIVATES THE FORWARD
DIRECTION
CR430 ACTIVATES THE REVERSE
DIRECTION
CR431 OPENS A HOLDING
BRAKE DEVICE (OPTIONAL)

24VDC POWER SUPPLY
30 W, 1.3 A

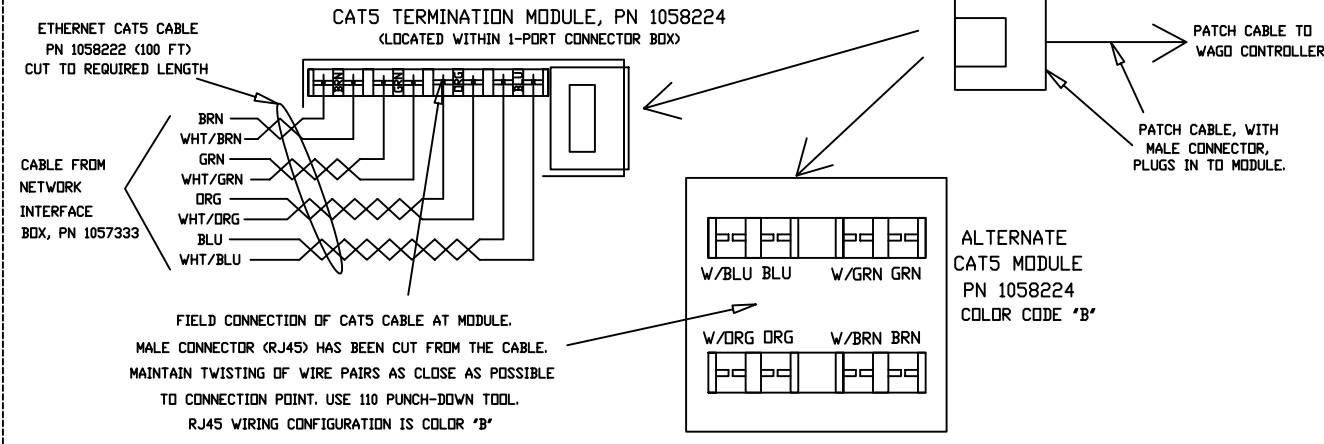
LEGEND
△ - REMOTELY LOCATED DEVICE
○ - GUNMOVER PANEL TERMINAL
○ - J-BOX TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|--------------------------------------------|---------|-------------------------------------------------------------------|----------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| SEE SHEET 1 | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | BL | DATE | 1MAR05 |
| NEXT ASSEMBLY | MACHINED SURFACES | CHECKED BY | --- | APPROVED BY | --- |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE37289 | CONTROL NUMBER | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL PANEL, ANALOG POSITIONER, ICONTROL | | 1055883 | REV. A05 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 2 / 4 | |

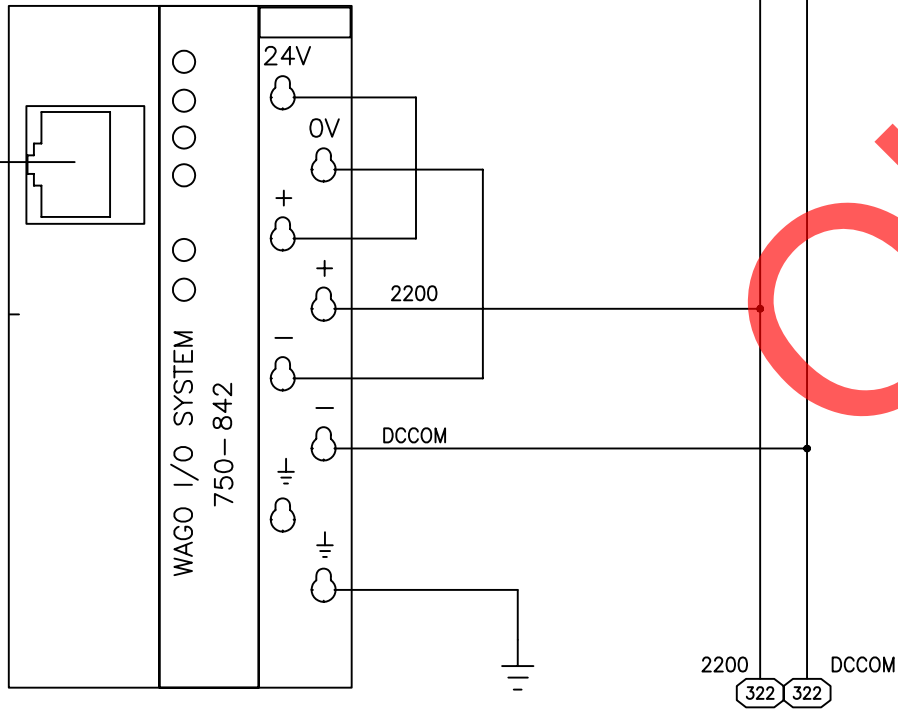
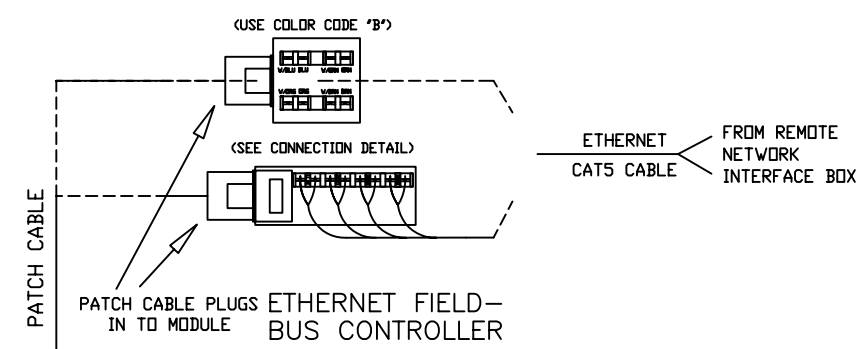
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TYPICAL CAT5 ETHERNET FIELD CONNECTION

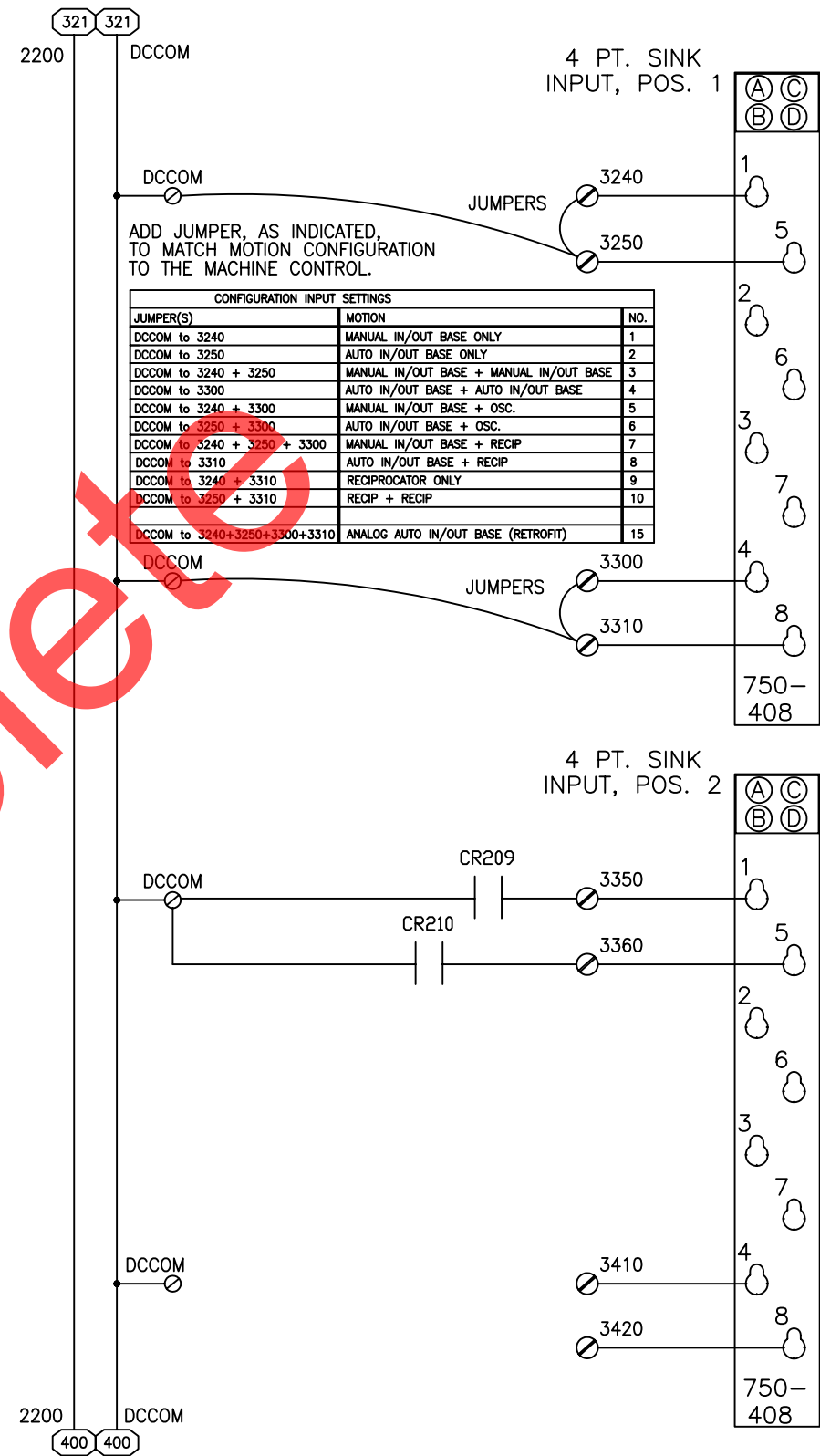


CAT5 TERMINATION MODULE TWO POSSIBLE CONNECTOR CONFIGURATIONS



LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

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343



INPUT LED's
A,C,B,D =
1,5,4,8

INPUT LED's
A,C,B,D =
1,5,4,8

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

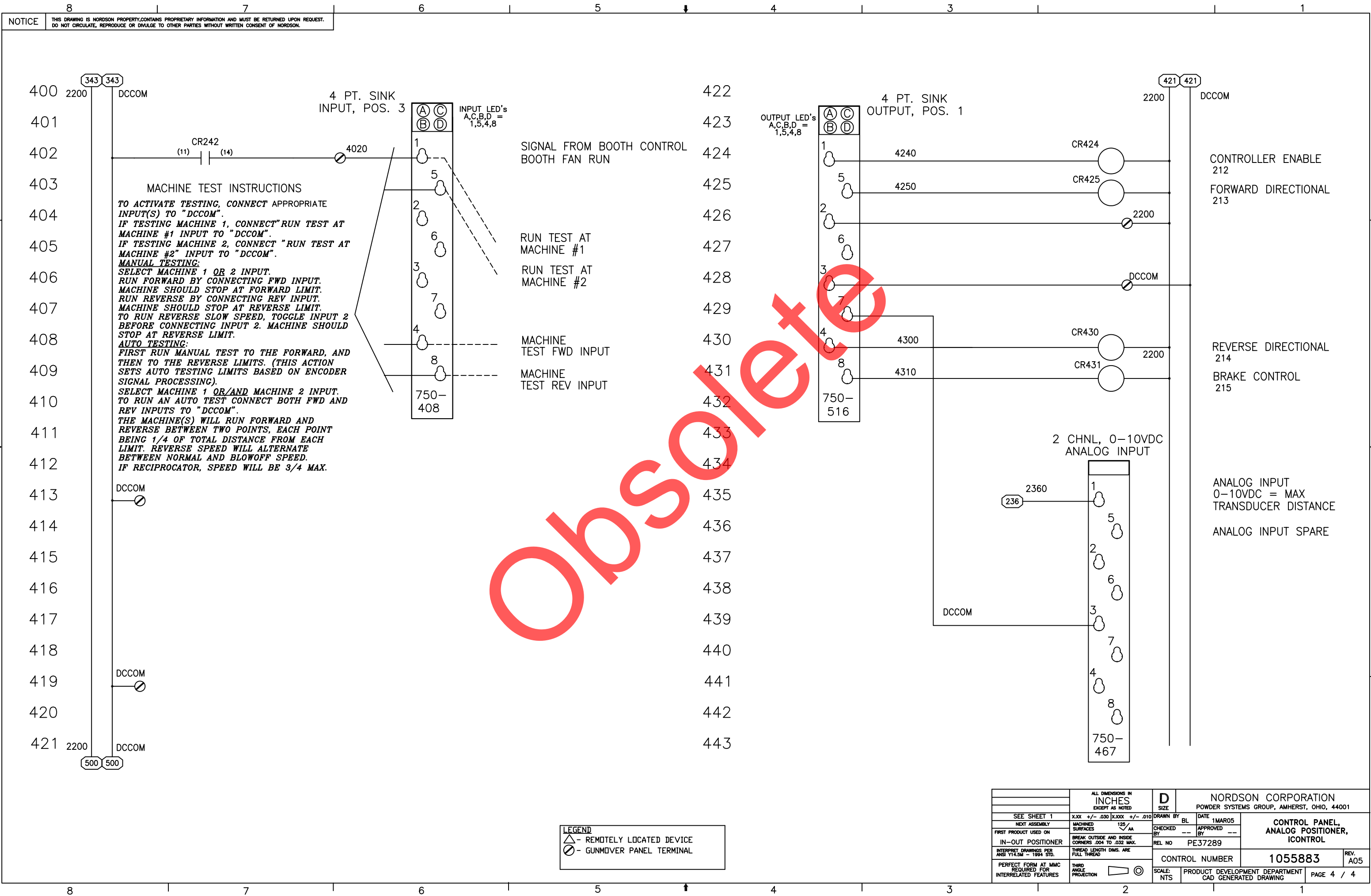
NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE BEFORE THE MACHINE WILL OPERATE. THE JUMPER(S) DEFINES THE TYPE OF MACHINE(S) THAT WILL BE CONTROLLED. THE DESIGNATION AFTER THE (+) SIGN INDICATES AN OPTIONAL SECOND MACHINE CONFIGURATION THAT MAY BE CONTROLLED BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

FORWARD LIMIT

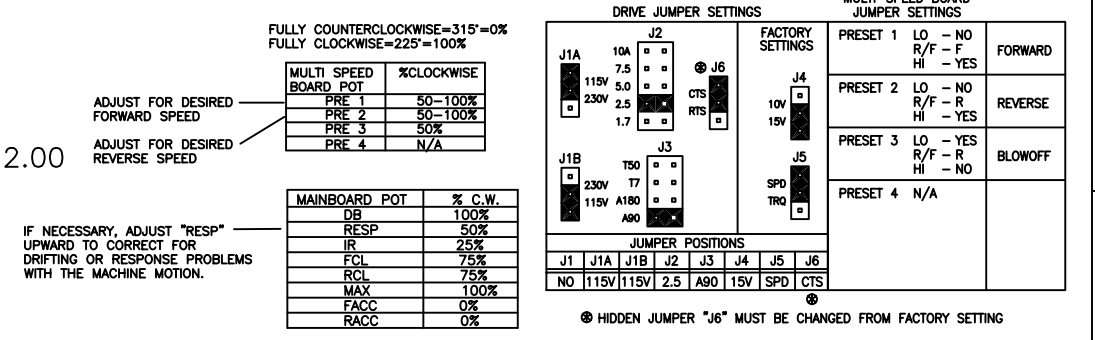
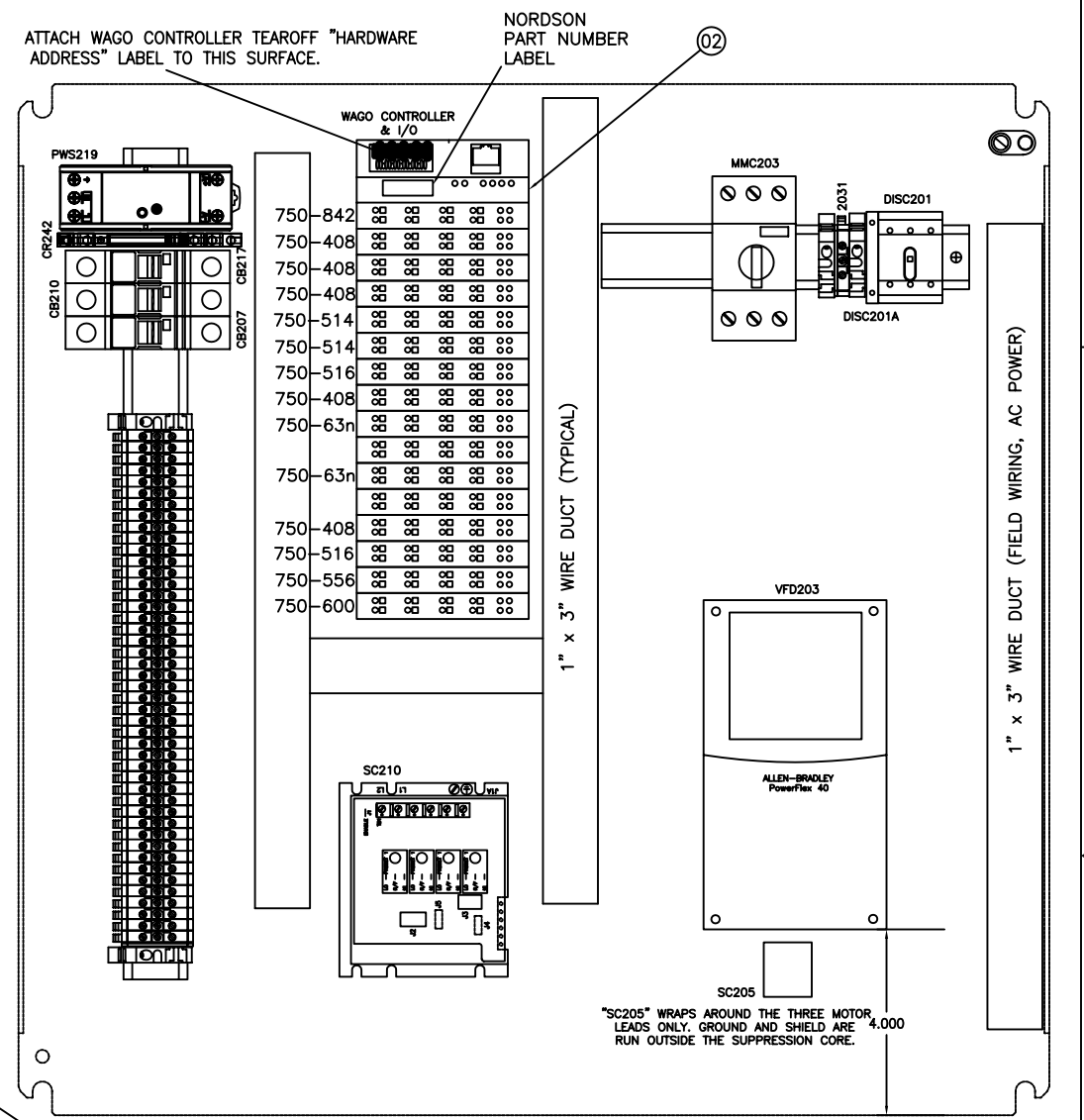
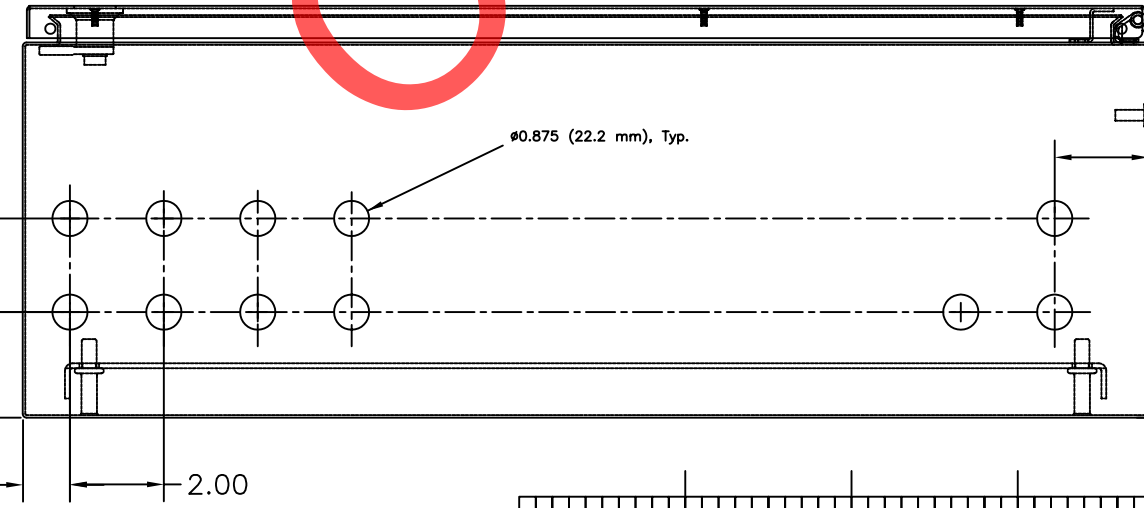
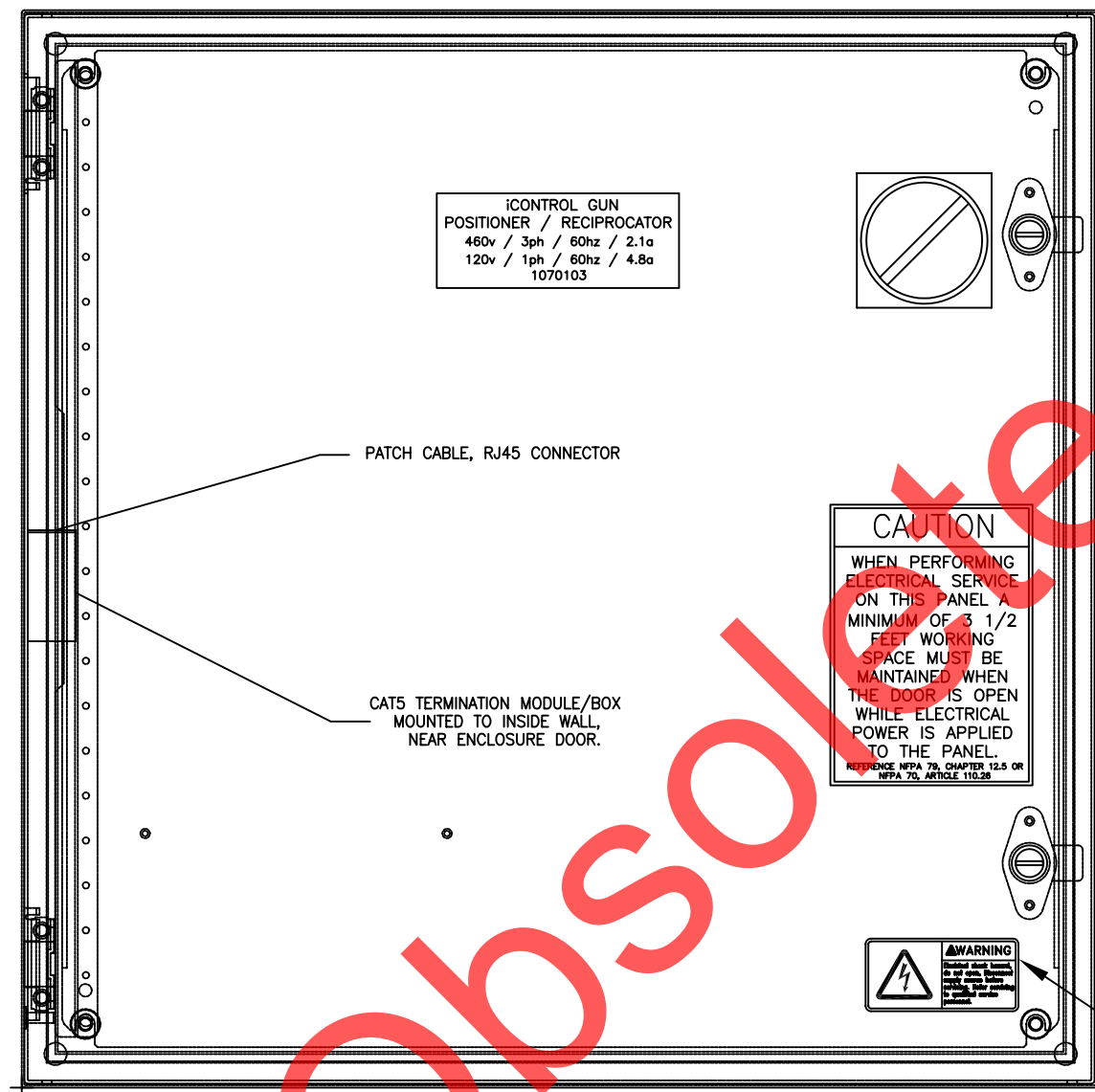
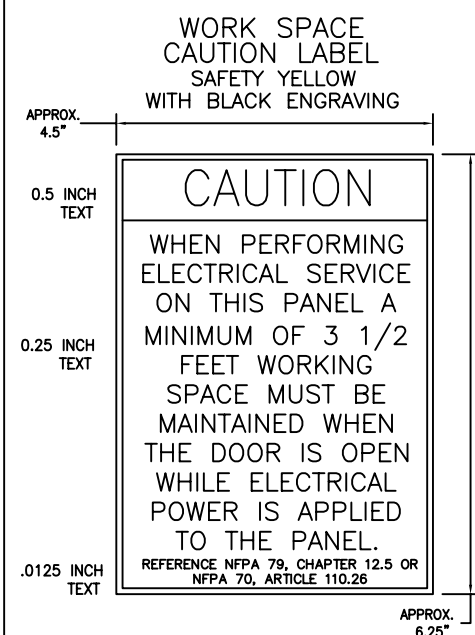
REVERSE LIMIT



| | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------|----------------|
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| VENDOR'S BILL OF MATERIAL | | | |
| QTY | ITEM | PART NO. | MFG. |
| 1 | ENCLOSURE | SEE INVERTER CHART | HOFFMAN |
| 1 | SUB-PLATE | C-P2424 | HOFFMAN |
| A/R | DIN RAIL | D5PD2-20 | CUTLER-HAMMER |
| 4 | END ANCHOR | C383ES35 | CUTLER-HAMMER |
| 2 | END PLATE | C383AP4 | CUTLER-HAMMER |
| 46 | TERMINAL BLOCK | C383RK254 | CUTLER-HAMMER |
| 1 | JUMPER | C383JC402 | CUTLER-HAMMER |
| 1 | GROUND TERMINAL | PK7GTA | SQUARE D |
| 1 | GROUND LUG | ---- | ---- |
| 1 | CIRCUIT BREAKER | WMS1C4 | CUTLER-HAMMER |
| 1 | CIRCUIT BREAKER | WMS1D10 | CUTLER-HAMMER |
| 1 | CIRCUIT BREAKER | WMS1C2 | CUTLER-HAMMER |
| A/R | WIRE DUCT, 1" x 3" | ---- | ---- |
| 1 | WORKING SPACE CAUTION LABEL, SAFETY YELLOW, WITH BLACK ENGRAVING | CUSTOM | ---- |
| 1 | RELAY, 120VAC, SPDT, DIN-RAIL MOUNT | 700-HLT1U1 | ALLEN-BRADLEY |
| 1 | POWER SUPPLY, 30 WATT | PS5R-SC24 | IDEC |
| 1 | DISCONNECT SWITCH | OT16E3 | ABB |
| 1 | HANDLE | OHB2AJ1 | ABB |
| 1 | SHAFT | OXSS180 | ABB |
| 1 | ADAPTER, PADLOCK, OPEN PANEL | DS-SA1 | ABB |
| 1 | AUX. CONTACT, DISCONNECT | ---- | ABB |
| 1 | INVERTER, 3-PH, 1-HP | SEE INVERTER CHART | ALLEN-BRADLEY |
| 1 | EMI SUPPRESSION CORE, SPLIT HALVES (SC205) | 0043167251 | FAIR-RITE |
| 1 | MANUAL MOTOR CONTROLLER | SEE INVERTER CHART | CUTLER-HAMMER |
| 1 | DC DRIVE | KBMG-212D | KB ELECTRONICS |
| 1 | MULTI-SPEED BOARD | 8833 | KB ELECTRONICS |
| 1 | PROGRAMMED ETHERNET FIELD BUS CONTROLLER, WAGO pr750-842 | SEE ITEM 02 | NORDSON |
| 5 | MODULE, INPUT, SINK, 4 PT. | 750-408 | WAGO |
| 2 | MODULE, OUTPUT, SINK, 4 PT. | 750-516 | WAGO |
| 2 | MODULE, OUTPUT, RELAY, 2 PT. | 750-514 | WAGO |
| 2 | MODULE, INTERFACE, ENCODER | 750-631 | WAGO |
| 1 | MODULE, INTERFACE, ENCODER | 750-634 | WAGO |
| 1 | MODULE, OUTPUT, ALG., +/- 10VDC | 750-556 | WAGO |
| 1 | MODULE, END | 750-600 | WAGO |
| 1 | MAX MODULE, CAT5, ETHERNET | MX5-F02 | SIEMON |
| 1 | CONNECTOR BOX, 1-PORT, ETHERNET | MX-SM1-02 | SIEMON |
| 1 | PATCH CABLE, CAT5e, T568B, ETHERNET, 24" | ---- | ---- |

* - 750-631 AND 750-634 ARE INTERCHANGABLE MODULES, 750-634 REPLACING 750-631.
- MARK THIS ITEM AS "SC205". FOR SHIPMENT, SECURE VIA CLEAR PACKING TAPE TO THE FRONT COVER OF THE INVERTER, ITEM VFD203.

| | | | | | |
|----------------|--------------|---------|--------------|---------|--------------|
| INVERTER CHART | | | | | |
| 3-PH VOLTS | 208 | 230 | 380 | 480 | 575 |
| CONTROLLER | A-302JN | A-302HN | A-302GN | A-302GN | A-302GN |
| INVERTER | 22B-B5P0N104 | | 22B-D2P3N104 | | 22B-E1P7N104 |
| ENCLOSURE | C-SD24248 | | | | |



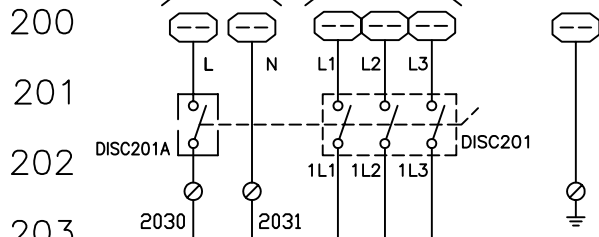
| | | | | |
|-------------------------------------------------------------------|-----|----------|--------------------------------------------|------|
| 02 | L | 1055963 | CONTROLLER, PROGRAMMED, GUN POS'R iCONTROL | 1 |
| 01 | L | 226709 | LABEL, WARNING, CONTROL PANEL | 1 |
| ITEM | ICT | PART NO. | DESCRIPTION | QTY. |
| NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | | |
| PANEL, iCONTROL POSITIONER, RECIPROCATOR | | | | |
| CONTROL NUMBER 1070103 | | | | |
| SCALE: NTS | | | | |
| PRODUCT DEVELOPMENT DEPARTMENT | | | | |
| PAGE 1 / 6 | | | | |

8 7 6 5 4 3 2 1

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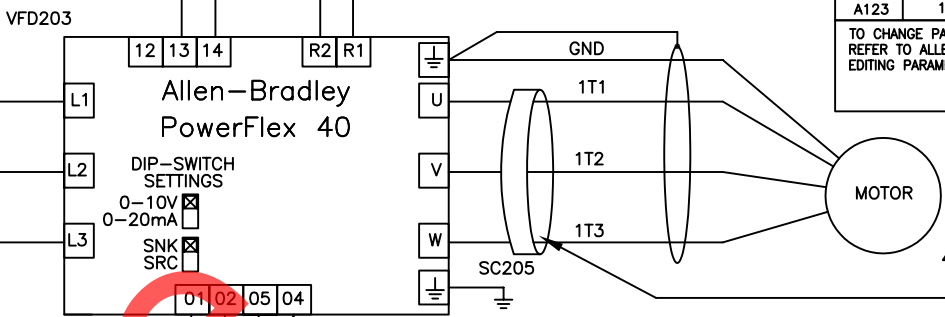
USERS 120V
1PH, 60 Hz,
10 AMP SUPPLY

USERS 3PH,
60Hz SUPPLY



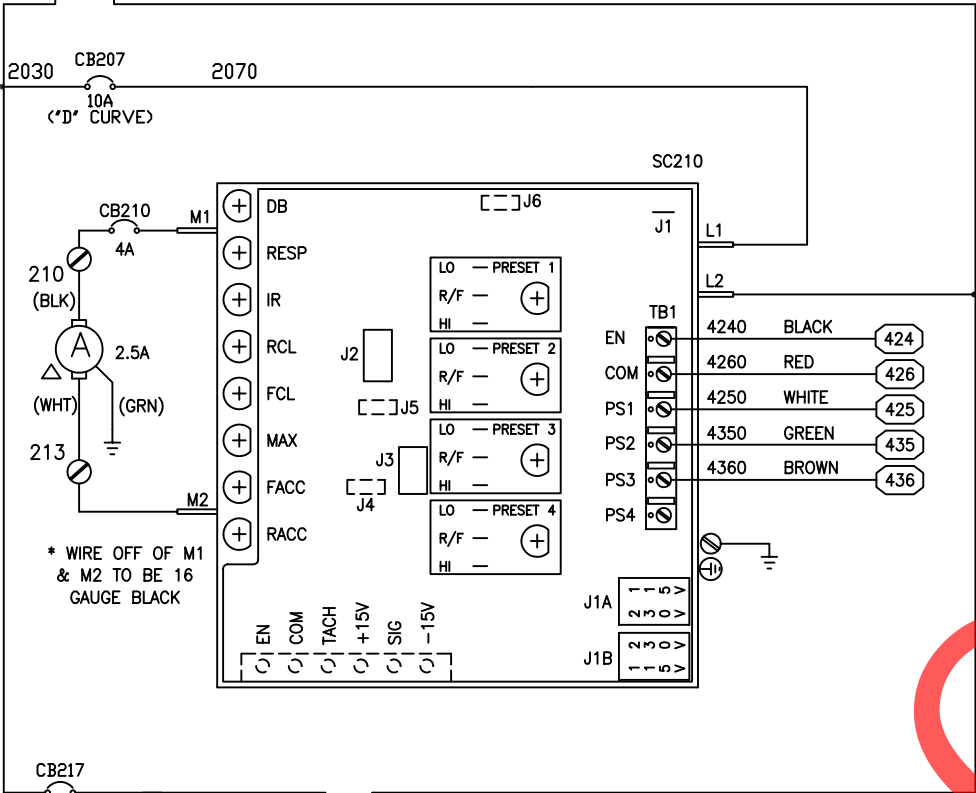
| PARAMETER SETTINGS | | |
|--------------------|-------|----------------------------------|
| P | VALUE | DESCRIPTION |
| P031 | A/R | MOTOR NAMEPLATE "VOLTS" |
| P033 | A/R | MOTOR NAMEPLATE "FULL LOAD AMPS" |
| P035 | 70 | MAXIMUM FREQUENCY |
| P036 | 2 | START SOURCE - "2-WIRE" |
| P037 | 4 | STOP MODE - "RAMP" |
| P038 | 2 | SPEED REFERENCE - "0-10V INPUT" |
| P039 | 0.2 | ACCELERATION TIME |
| P040 | 0.2 | DECELERATION TIME |
| A123 | 1 | 10V BIPOLAR ENBL - "BI-POLAR IN" |

TO CHANGE PARAMETERS:
REFER TO ALLEN-BRADLEY POWERFLEX 40 USERS MANUAL, VIEWING AND
EDITING PARAMETERS.



RECIPROCATOR MOTOR
3 PH, 1 HP, INVERTER DUTY

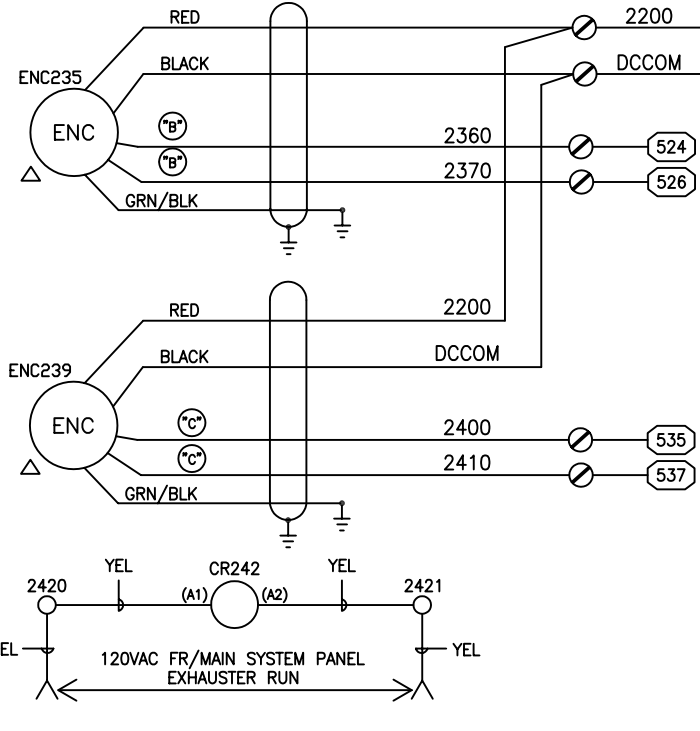
"SC205" WRAPS AROUND THE THREE MOTOR
LEADS ONLY. GROUND AND SHIELD ARE
RUN OUTSIDE THE SUPPRESSION CORE.



W/MULTI-SPEED BOARD
KBMG-212D/8831
90VDC, 1/4HP, 4A

ENABLE
COMMON
FORWARD/EXTEND
REVERSE/RETRACT
BLOWOFF/SLOW RETRACT

| POSITIONER ENCODER RESOLUTION AND WIRING | | |
|------------------------------------------|------------------|-------------------------------|
| BASE TYPE | PULSE/INCH ("A") | WIRING ("B") |
| RACK & PINION 1018682 | 262 | 2360 = GREEN 2370 = ORANGE |
| BELT-DRIVE 1056206 | 224 | 2360 = ORANGE 2370 = GREEN |



MACHINE #1
ENCODER
("A") PULSE/INCH

MACHINE #2
ENCODER
64 PULSE/INCH

EXHAUSTER RUN
INTERLOCK
402

| RECIPROCATOR ENCODER WIRING | |
|------------------------------------|-------------------------------|
| "0" POSITION at | WIRING ("C") |
| FORWARD LIMIT (DEFAULT/TESTING) | 2400 = ORANGE 2410 = GREEN |
| REVERSE LIMIT (OPTIONAL) | 2400 = GREEN 2410 = ORANGE |

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNDOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------------|--------|------------------------------|----------|-------------------------------------------------------------------|--------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 X.XXX +/- .010 | 125 AA | DRAWN BY | BL | DATE | 3JUN05 |
| MACHINED SURFACES | | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE300399 | CONTROL NUMBER | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | 1070103 | | REV. A11 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | PAGE 2 / 6 | |

D

C

B

A

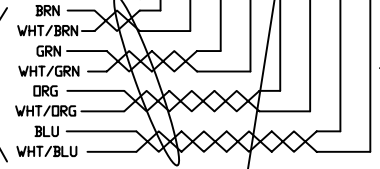
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TYPICAL CAT5 ETHERNET FIELD CONNECTION

ETHERNET CAT5 CABLE
PN 1058222 (100 FT)
CUT TO REQUIRED LENGTH

CAT5 TERMINATION MODULE, PN 1058224
(LOCATED WITHIN 1-PORT CONNECTOR BOX)

CABLE FROM
NETWORK
INTERFACE
BOX, PN 1057333



FIELD CONNECTION OF CAT5 CABLE AT MODULE.
MALE CONNECTOR (RJ45) HAS BEEN CUT FROM THE CABLE.
MAINTAIN TWISTING OF WIRE PAIRS AS CLOSE AS POSSIBLE
TO CONNECTION POINT. USE 110 PUNCH-DOWN TOOL.
RJ45 WIRING CONFIGURATION IS COLOR 'B'

CAT5 TERMINATION MODULE
TWO POSSIBLE CONNECTOR CONFIGURATIONS

(USE COLOR CODE 'B')

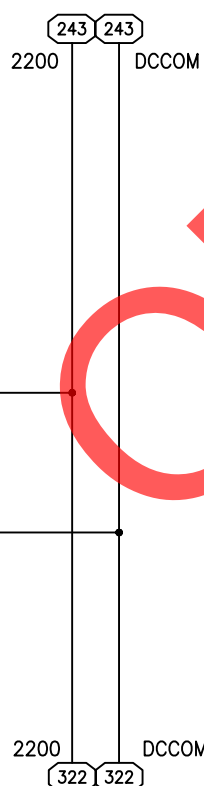
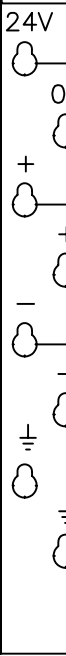
(SEE CONNECTION DETAIL)

ETHERNET FROM REMOTE
CAT5 CABLE NETWORK
INTERFACE BOX

PATCH CABLE
PATCH CABLE PLUGS
IN TO MODULE

ETHERNET FIELD-
BUS CONTROLLER

WAGO I/O SYSTEM
750-842



LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

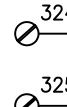
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ADD JUMPER, AS INDICATED,
TO MATCH MOTION CONFIGURATION
TO THE MACHINE CONTROL.

| CONFIGURATION INPUT SETTINGS | | |
|------------------------------|-----------------------------------------|-----|
| JUMPER | MOTION | NO. |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCTOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |

4 PT. SINK
INPUT, POS. 1



INPUT LED's
A,C,B,D =
1,5,4,8

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

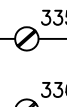
MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

4 PT. SINK
INPUT, POS. 2



INPUT LED's
A,C,B,D =
1,5,4,8

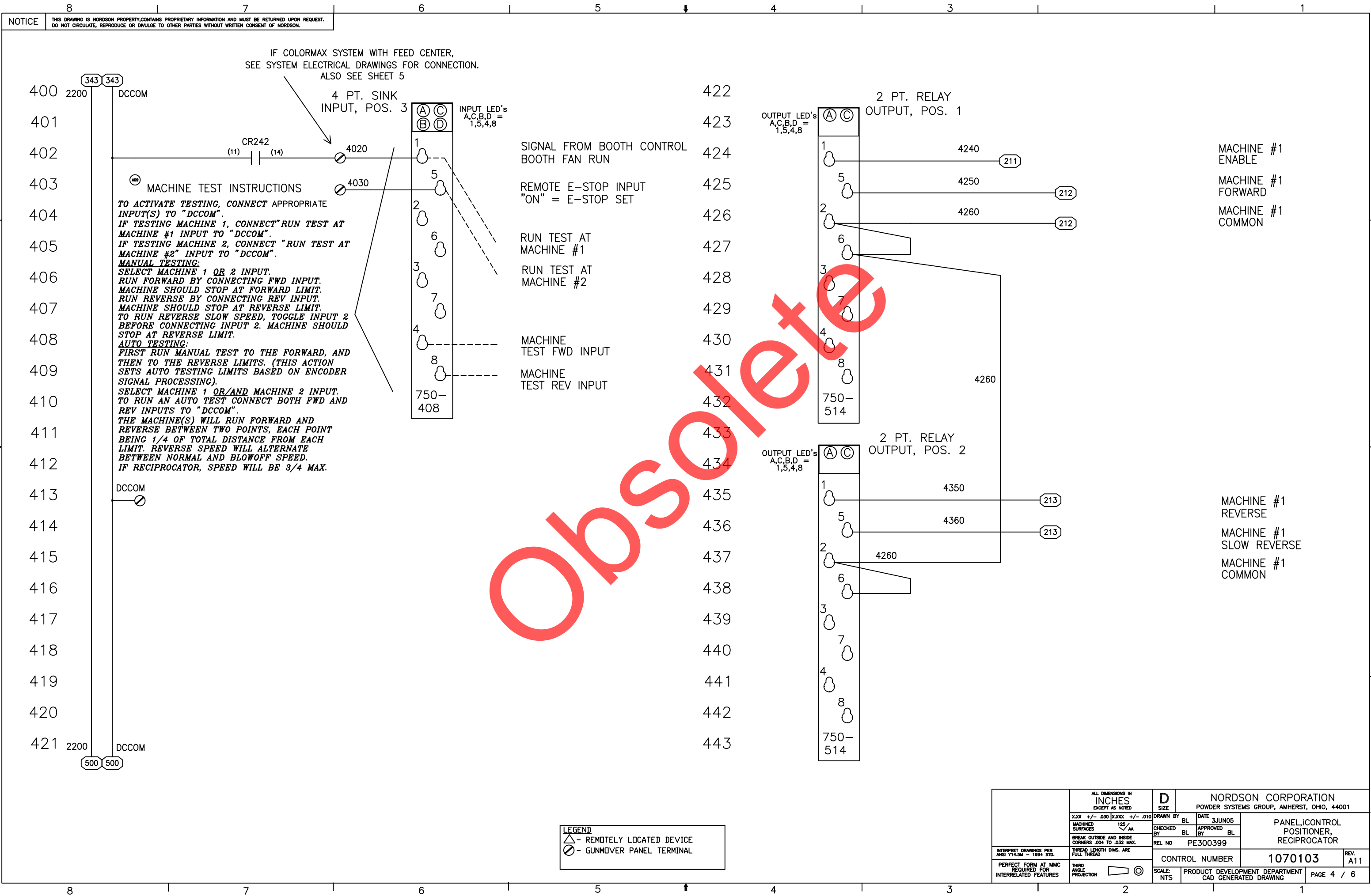
MACHINE #1
FORWARD LIMIT

MACHINE #1
REVERSE LIMIT

MACHINE #1

MACHINE #1
USA COLORMAX,
PURGE LIMIT

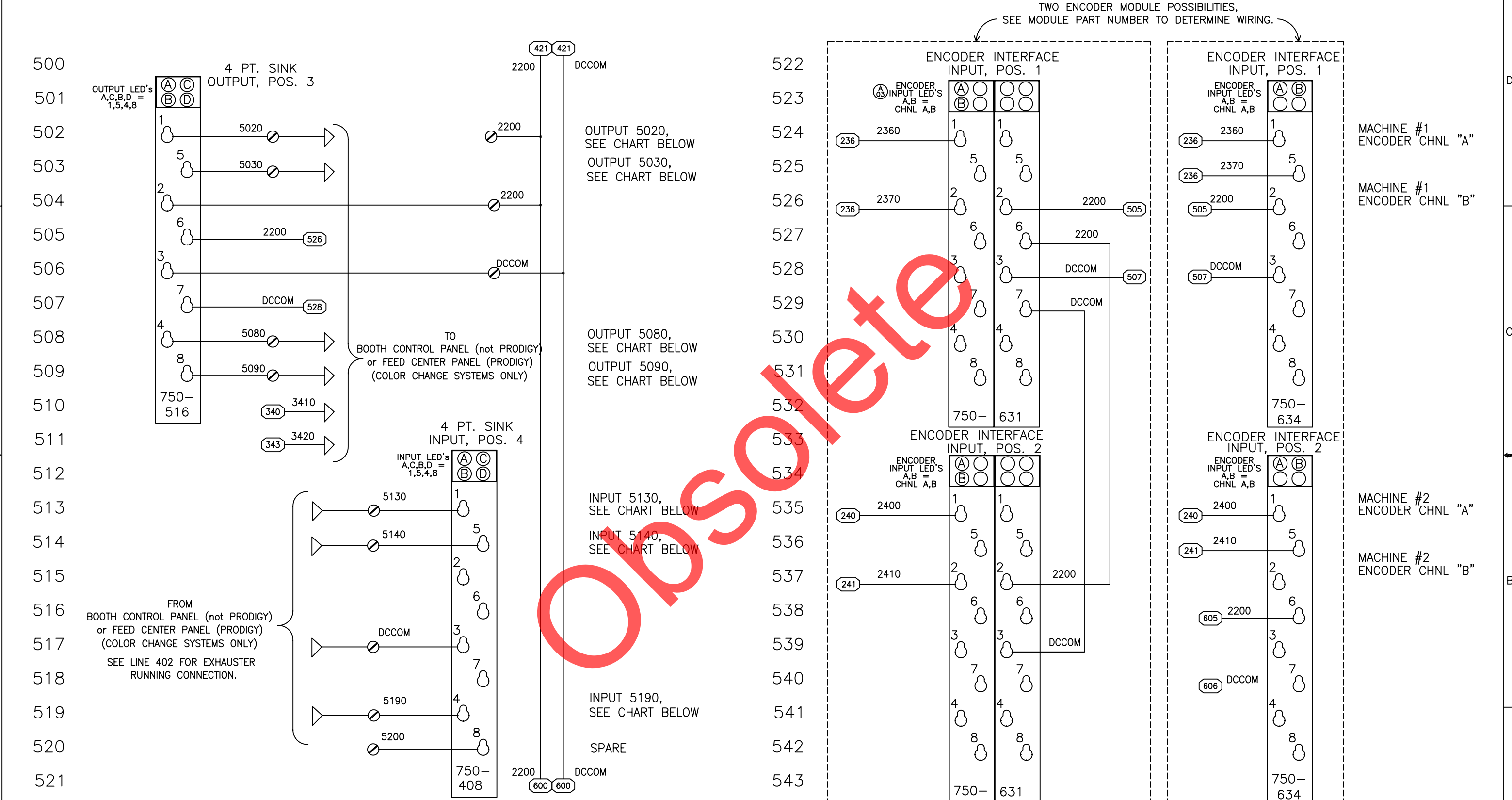
| | | | | | |
|--------------------------------------------------------------|----------------|---------------------------------------------------------|----------|-------------------------------------------------------------------|--------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 | X.XXX +/- .010 | DRAWN BY | BL | DATE | 3JUN05 |
| MACHINED SURFACES | 125 AA | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE300399 | | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1070103 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | REV. A11 | |
| SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 3 / 6 | |



MACHINE TEST INSTRUCTIONS
TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT "RUN TEST AT MACHINE #1" INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT. MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT. MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT. TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN/MOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|-------------------------------------|----------------|---------------------------------------------------------|-------------------------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 | X.XXX +/- .010 | DRAWN BY | BL | DATE | 3JUN05 |
| MACHINED SURFACES | 125 AA | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE300399 | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1070103 | REV. A11 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 4 / 6 |



| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-------------------------------------|
| Terminal | I/O | not Prodigy (GM1 & GM2) | Prodigy (GM1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control |
| 5080 | OUTPUT | Ready for Color Change | Spare |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

X.XX +/- .030 | X.XXX +/- .010

MACHINED SURFACES 125 AA

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

THREAD LENGTH DIMS. ARE FULL THREAD

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

D SIZE

DATE 3JUN05

CHECKED BY BL

APPROVED BY BL

REL NO PE300399

CONTROL NUMBER 1070103

SCALE: NTS

PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

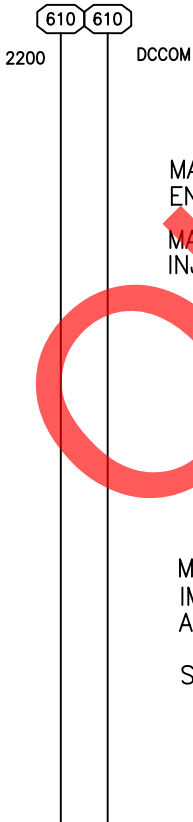
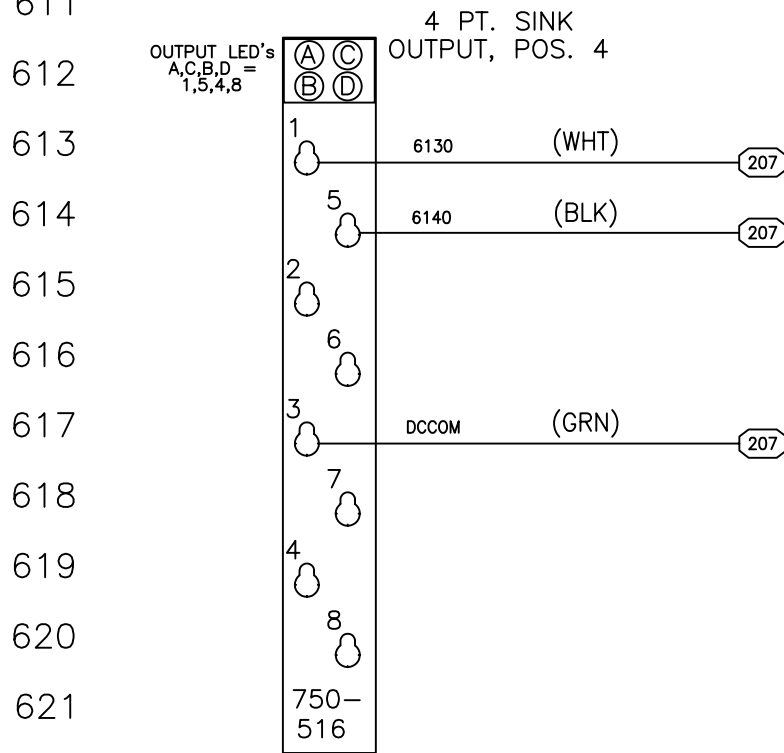
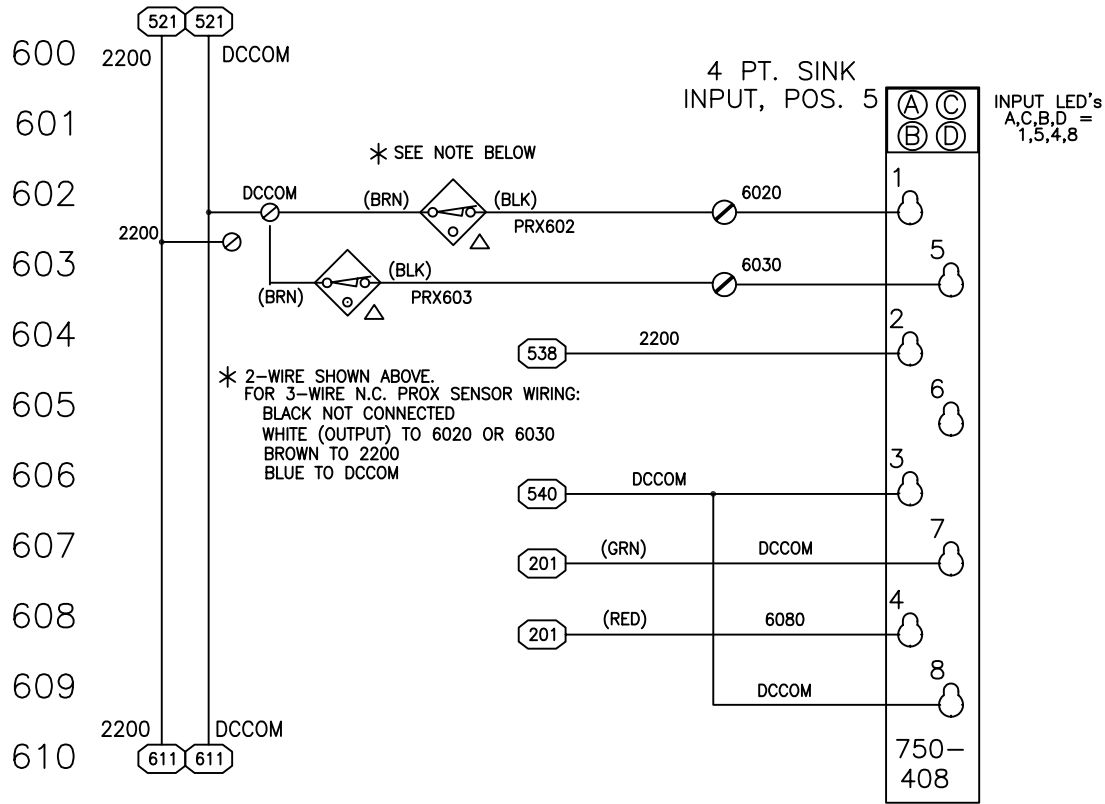
NORDSON CORPORATION

POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

PANEL, iCONTROL POSITIONER, RECIPROCATOR

REV. A11

PAGE 5 / 6



MACHINE #2
FORWARD LIMIT

MACHINE #2
REVERSE LIMIT

MACHINE #2
READY

MACHINE #2
RECIPROCATOR MOVEMENT
WARNING/DELAY DISABLE

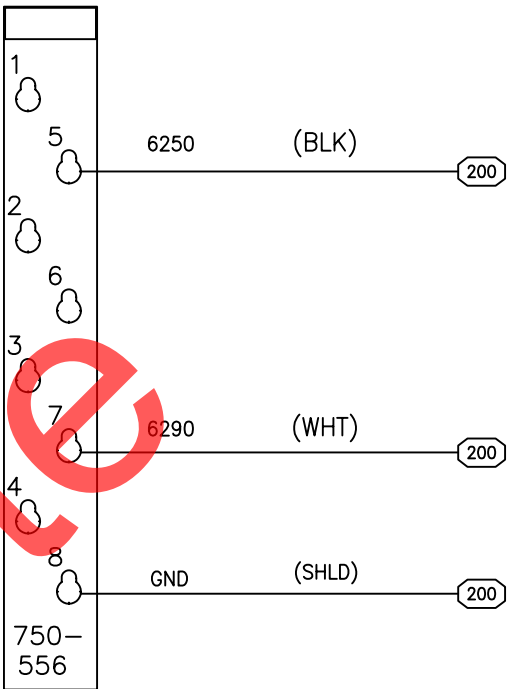
MACHINE #2
ENABLE

MACHINE #2
INJECTION BRAKE

MACHINE #2
IMPENDING MOVEMENT
AUDIBLE WARNING

SPARE

ANALOG OUTPUT
+/- 10 VDC



MACHINE #2
ANALOG OUTPUT (+)

MACHINE #2
ANALOG OUTPUT (-)

NOTE: ANALOG OUTPUT MODULE MUST BE PHYSICALLY POSITIONED AFTER ENCODER MODULE(S).

LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------------|--|----------------------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | DRAWN BY BL DATE 3JUN05 | | PANEL, iCONTROL POSITIONER, RECIPROCATOR | |
| MACHINED SURFACES 125 AA | | CHECKED BY BL APPROVED BY BL | | REV. A11 | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO PE300399 | | CONTROL NUMBER 1070103 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | PAGE 6 / 6 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | SCALE: NTS | |
| | | | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |

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| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|---------------------|-------------------------------------------------|------|------------------------|------------------|
| 0 | | | REF DWG, ASSY PANEL, GUN POSITIONER | 0 | | 1078407 |
| 101 | | A-1614CH | ENCLOSURE, CONT HINGE, 16x14x6 | 1 | HOFFMAN | 1078420 |
| 102 | | CUSTOM | LABEL SET, GUN POSITIONER | 1 | ----- | 1078684 |
| 103 | | 8002-ISO | TAG, WARNING, ELECT SHOCK HAZARD, 1.00x.88 | 1 | SAFETY LABEL SOLUTIONS | 1075692 |
| 104 | | | LABEL, IDENTIFICATION, 1.00 X 2.00 | 1 | | 1005678 |
| 105 | | 0514500000 | TBACCY, DIN, RAIL, SLOT, 35x2M-LG | .49M | WEIDMULLER, INC | 239214 |
| 106 | | | SCR, HEX, SELF TAP, 10-32X .500, Z | 6 | | 981137 |
| 107 | | A-16P14 | ENCLACCY, PANEL, 14.75x12.88, 14GA | 1 | HOFFMAN | 1078422 |
| 108 | | F1x3LG6 | WIREWAY, 1 X 3 | .17 | PANDUIT | 1046393 |
| 109 | GROUND | PK7GTA | BUSBAR, GND, 100A, 7 POS | 1 | SQUARE D | 1046405 |
| 110 | SC210 | KBMG-212D WITH 8833 | CONTROLLER, DC DRIVE W/ SP BD, GUN PSNR | 1 | KB ELECTRONICS | 1046921 |
| 111 | | | SCR, HEX, SELF TAP, SLTD, 8-32X.50, TYPE T, Z | 4 | | 1083981 |
| 112 | CB207 | 1DU10 | CIRCUIT BREAKER, 1 POLE, 10 AMP, 10-20 xl n | 1 | ALTECH | 1078518 |
| 113 | CB210 | 1CU8 | CIRCUIT BREAKER, 1 POLE, 8 AMP, 5-10 xl n | 1 | ALTECH | 1092954 |
| 114 | PWS219 | SPD24301 | POWER SUPPLY, DIN RAIL, MT, 30W, 24-28VDC | 1 | CARLO GAVAZZ1 | 1080749 |
| 115 | | | MODULE GROUP, I/O, WAGO | 1 | WAGO | 1078669 |
| 116 | | C1LG6 | COVER, 1 | 1FT | PANDUIT | 1046394 |
| 117 | FU217 | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4 X 1-1/4" FUSES | 1 | ALLEN BRADLEY | 341366 |
| 118 | FU217 | MDL-1-R | FUSE, 2AMP, SLOBL0, 250V, 3AG, 313 | 1 | BUSSMANN | 939016 |
| 119 | FU217 | 1492-N37 | END, PLATE, AB FUSE | 1 | ALLEN BRADLEY | 341367 |
| 120 | | 1492-J4 | TERMINAL BLK, GRAY, IEC, 22-10 AWG, JG4 | 30 | ALLEN BRADLEY | 1075583 |
| 121 | | 1492-EAJ35 | ANCHOR, END | 2 | ALLEN BRADLEY | 306318 |
| 122 | CR242 | 700-HLT1U1 | RELAY, TERM BLK, SPDT, 110/125V AC/DC | 1 | ALLEN BRADLEY | 1071600 |
| 123 | | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, IEC, 22-10 AWG, JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 124 | | 1492-J4-Y | TERMINAL BLK, YELLOW, IEC, 22-10 AWG, JG4 | 2 | ALLEN BRADLEY | 1075694 |
| 125 | | 1492-EBJ3 | BARRIER, TBACCY, END, DIN, GRAY, J SERIES | 2 | ALLEN BRADLEY | 1075584 |
| 126 | | | WIRE, 105C, 18GA, BLUE, 600V | 31.5 | | 335174 |
| 127 | | | STRNDWIRE, 14 AWG, YEL, 600V, 105C | 3 | | 1079956 |
| 128 | | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 4.75 | | 931191 |
| 129 | | | WIRE, VINYL, 14AWG, RED | 7.5 | | 931296 |
| 130 | | | WIRE, VINYL, 14AWG, WHITE | 3 | | 931268 |
| 131 | | | WIRE, VINYL, 18AWG, RED | 9 | | 931170 |
| 132 | | | STRAP, CABLE, .875 DIA | 7 | | 939110 |
| 133 | PATCH CABLE | UTPCH2 | CABLE, RJ45 TO RJ45, 2FT | 1 | PANDUIT | 282960 |
| 134 | | | PREFIX RESERVED | 1 | | 000000 |
| 135 | | | PREFIX RESERVED | 1 | | 000000 |
| 136 | | | TERMINAL, RINGTONG, INS, 16-14, 10 | 1 | | 933054 |
| 137 | | | NUT, HEX, MACH, #10-32, BRASS | 2 | | 984129 |
| 138 | | | WASHER, LK, E, SPT, #10, STL, NI | 1 | | 983120 |
| 139 | | | WASHER, FLT, E, 203X.406X.040, BR | 1 | | 983021 |
| 140 | | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | ALLEN BRADLEY | 1078531 |
| 141 | | | QUICKCONN, INS, FEM, .250" X .032", 14-16AWG | 4 | | 1049966 |
| 142 | | | TERMINAL, FLG, SPADE, INS, 16-14, 6 | 1 | | 933184 |
| 143 | | | LABEL SET, PANEL WIRING FOR 1055889 | 1 | | 1079873 |
| 144 | | | WASHER, LK, E, INT, #10, STL, ZN | 4 | | 983124 |
| 145 | | | LABEL, BLANK, 3.00X5.00 | 1 | | 603348 |
| 146 | | | MOUNT, CABLE STRAP | 4 | | 242837 |
| 147 | | | CONTROLLER, PROGRAMMED, GUN POS'R ICONTROL | 1 | | 1055963 |
| 148 | | BPF-7/8 | CAP, FLUSH, 7/8 DIA | 3 | CAPLUGS DIVISION | 900809 |
| 149 | | FIT-221-1/8 BLACK | TUBING, HEAT-SHRINK, .125ID | 3 IN | ALPHA WIRE | 931315 |
| 150 | CON211 | 1R3004A20F030 | RECEPTACLE, 3-PIN, FEMALE, 16AWG, 36LG | 1 | BRAD-HARRISON | ----- |
| 151 | CON701 | CKA-03I | BULKHEAD HOUSING | 1 | MENCOM | 7750215 |
| 152 | CON701 | CQF-12 | INSERT, FEMALE, 12 POLE | 1 | MENCOM | ----- |
| 153 | CON701 | CDFA 0.3 | SOCKETS, FEMALE, CRIMP, 28-22AWG | 9 | MENCOM | ----- |
| 154 | | | PREFIX RESERVED | 1 | | 000000 |

★ CUT JUMPER AS NEEDED FOR REQUIRED LENGTHS.

OPTION: PLUG & SPRAY BOOTH B.O.M.

| | DESIGNATION | PART NO. | ITEM | QTY | MFG. | NORDSON PART NO. |
|-----|-------------|-----------|----------------------------------------------|-----|----------|------------------|
| 155 | CON201A | | NUT, LOCK, 1/2 CONDUIT | 1 | | 984526 |
| 156 | CON201A | | SEAL, CONDUIT FITTING, 1/2, BLUE | 1 | | 939122 |
| 157 | CON201A | MIN-5MR-3 | RECEPTACLE, 5 PIN, MALE, 16 AWG, 36 IN LEADS | 1 | MENCOM | 1087623 |
| 158 | CON308 | ENSP1F5 | RECEPTACLE, FEMALE-FEMALE, BULKHEAD, RJ45 | 1 | WOODHEAD | 1091863 |

★ ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |

FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

| MULTI SPEED BOARD POT | %CLOCKWISE |
|-----------------------|------------|
| PRE 1 | 50-100% |
| PRE 2 | 50-100% |
| PRE 3 | 00% |
| PRE 4 | N/A |

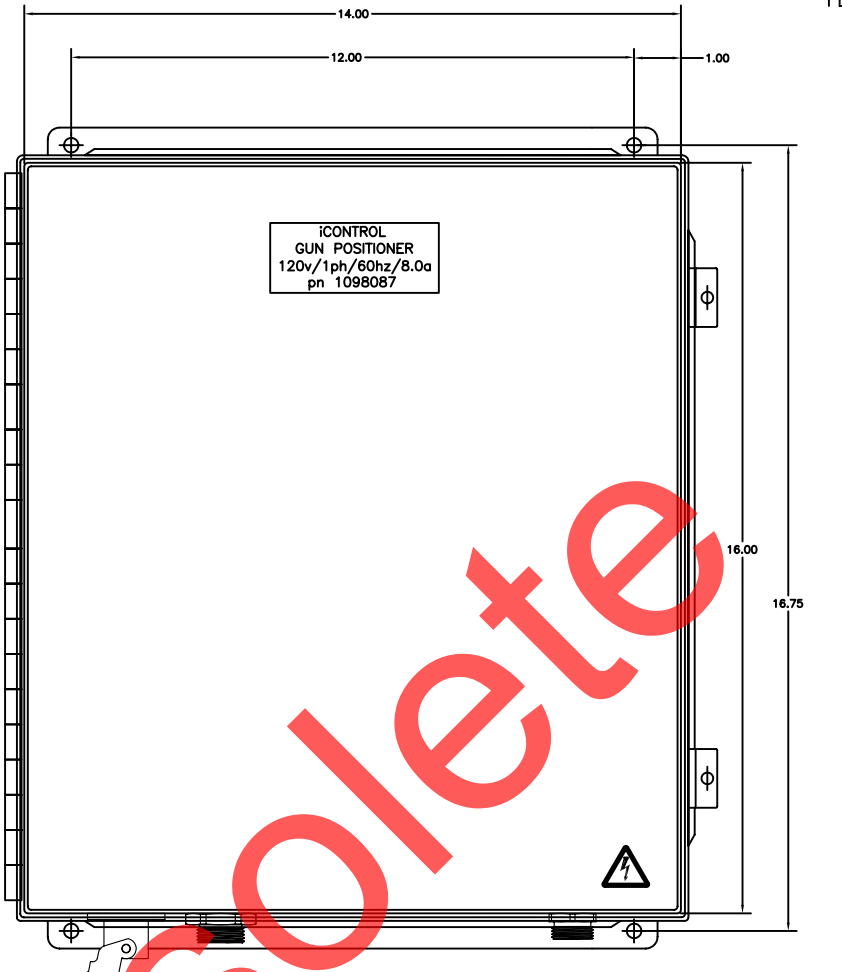
ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |

NOTE:

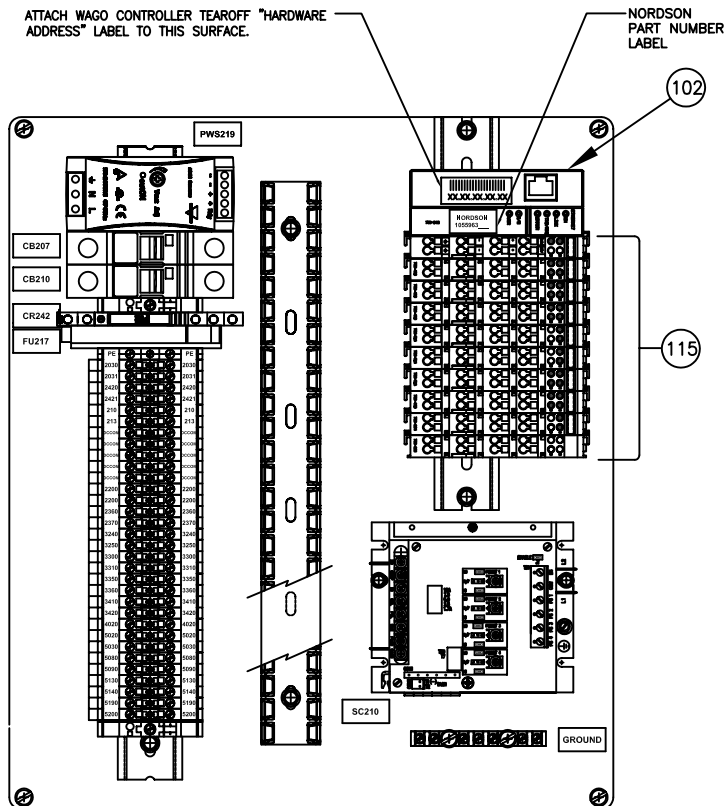
ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.



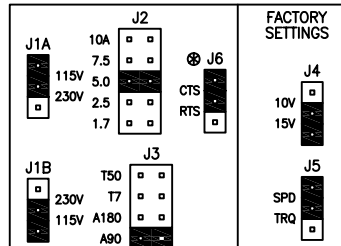
TERMINAL BLOCK LAYOUT

| PE |
|-------|
| 2030 |
| 2031 |
| 2420 |
| 2421 |
| 210 |
| 213 |
| DCCOM |
| DCCOM |
| DCCOM |
| DCCOM |
| DCCOM |
| 2200 |
| 2200 |
| 2360 |
| 2370 |
| 3240 |
| 3250 |
| 3300 |
| 3310 |
| 3350 |
| 3360 |
| 3410 |
| 3420 |
| 4020 |
| 5020 |
| 5030 |
| 5080 |
| 5090 |
| 5130 |
| 5140 |
| 5190 |
| 5200 |

ATTACH WAGO CONTROLLER TEAROFF "HARDWARE ADDRESS" LABEL TO THIS SURFACE.



DRIVE JUMPER SETTINGS

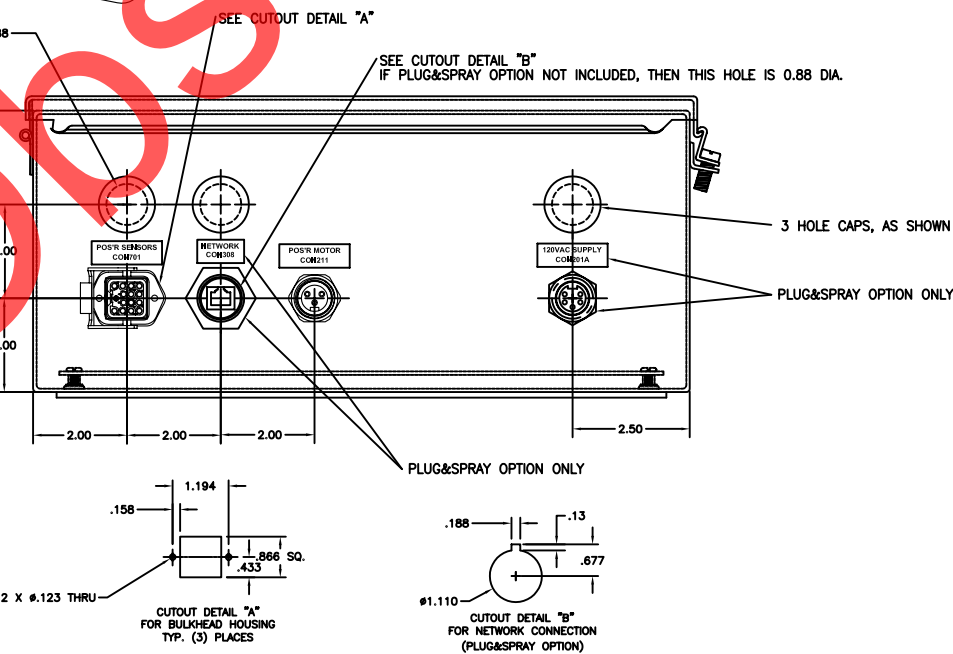


MULTI-SPEED BOARD JUMPER SETTINGS

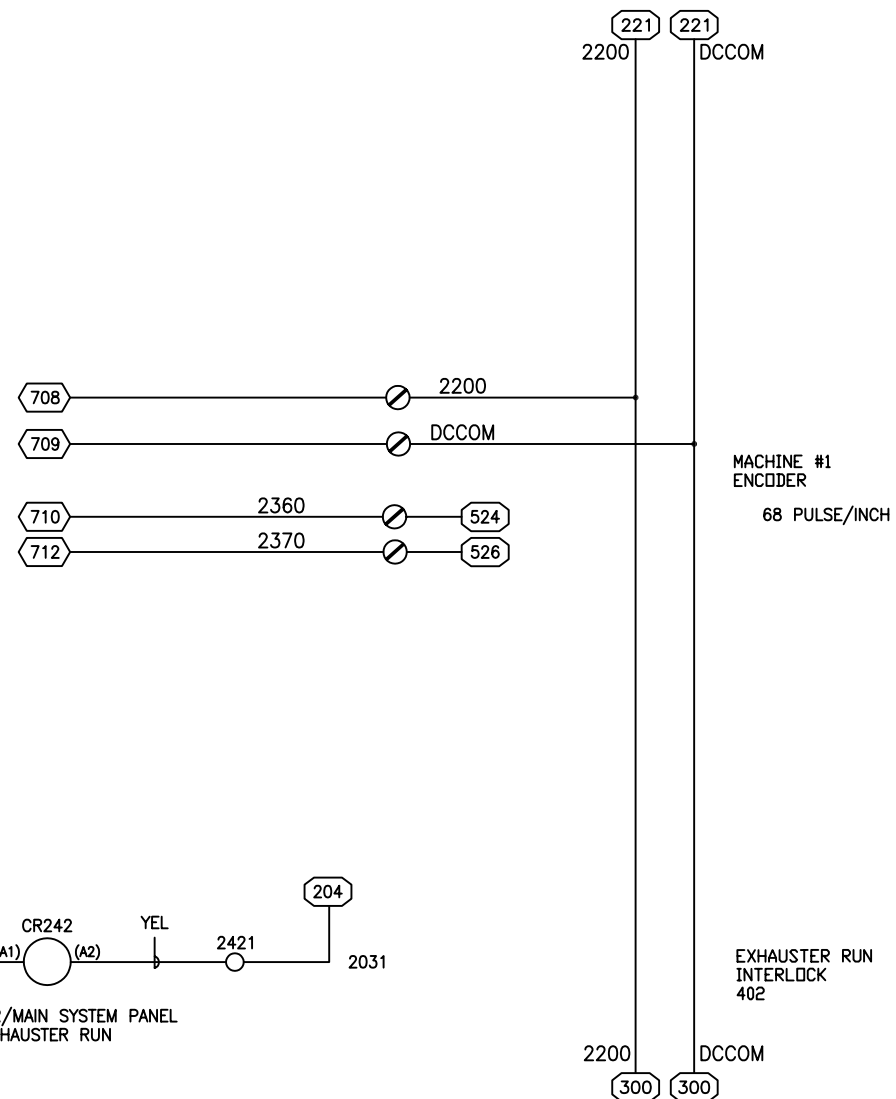
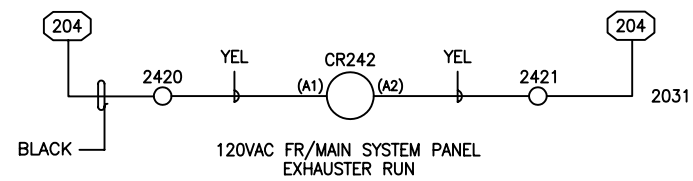
| PRESET | LO | NO | R/F | F | HI | YES | |
|----------|-----|----|-----|---|----|-----|---------|
| PRESET 1 | LO | NO | R/F | F | HI | YES | FORWARD |
| PRESET 2 | LO | NO | R/F | R | HI | YES | REVERSE |
| PRESET 3 | LO | NO | R/F | R | HI | YES | BLOWOFF |
| PRESET 4 | N/A | | | | | | |


| J1 | J1A | J1B | J2 | J3 | J4 | J5 | J6 |
|----|------|------|-----|-----|-----|-----|-----|
| NO | 115V | 115V | 5.0 | A90 | 15V | SPD | CTS |

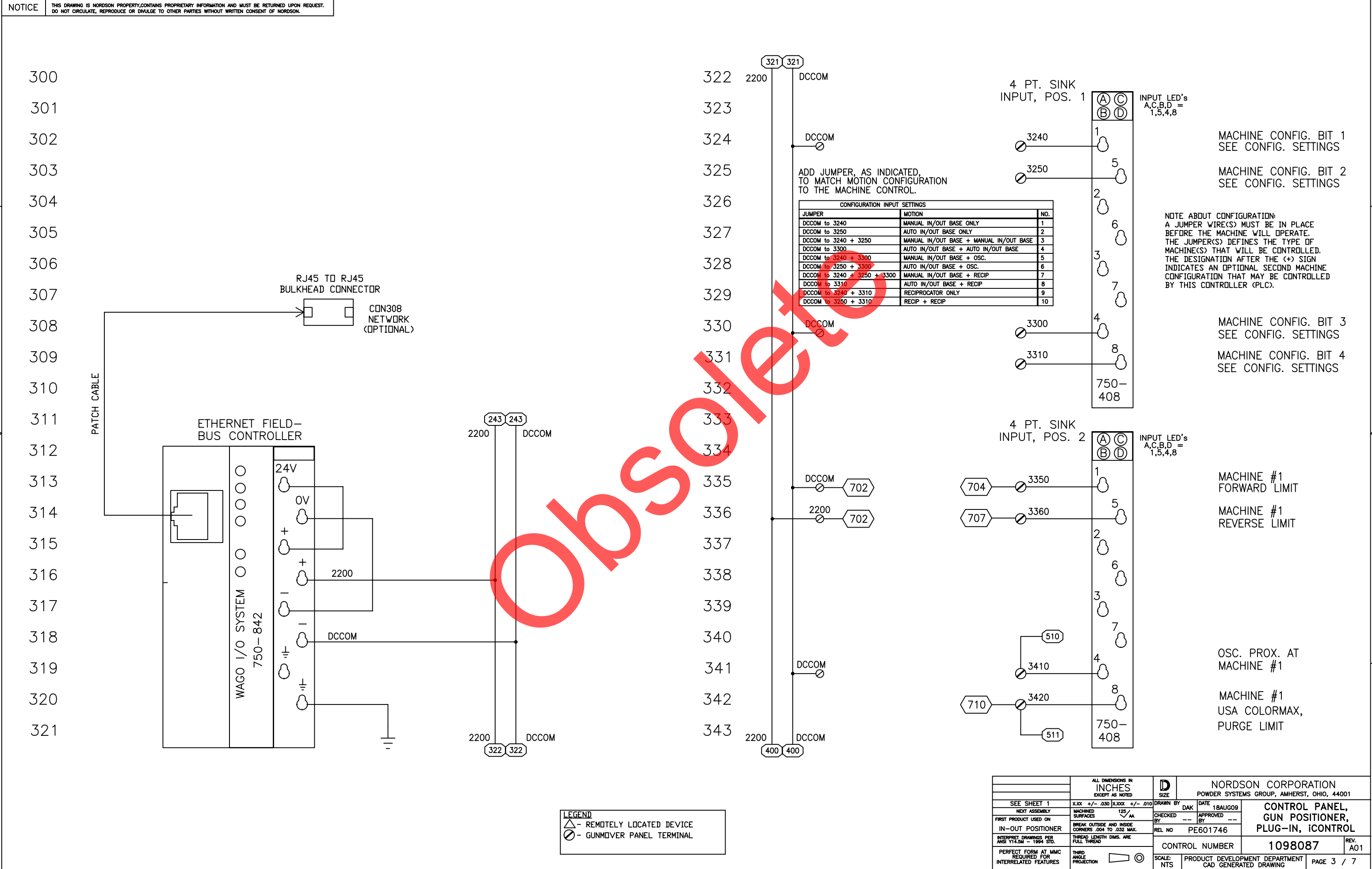
⊗ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING



| | | | | | |
|--------------------------------------------------------|--|-----------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY DAK | | DATE 18AUG09 | |
| MACHINED SURFACES | | CHECKED BY BL | | APPROVED BY --- | |
| IN-OUT POSITIONER | | REL NO PE601746 | | CONTROL PANEL, GUN POSITIONER, PLUG-IN, ICONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.3M - 1994 STD. | | CONTROL NUMBER | | 1098087 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| THIRD ANGLE PROJECTION | | | | PAGE 1 / 7 | |

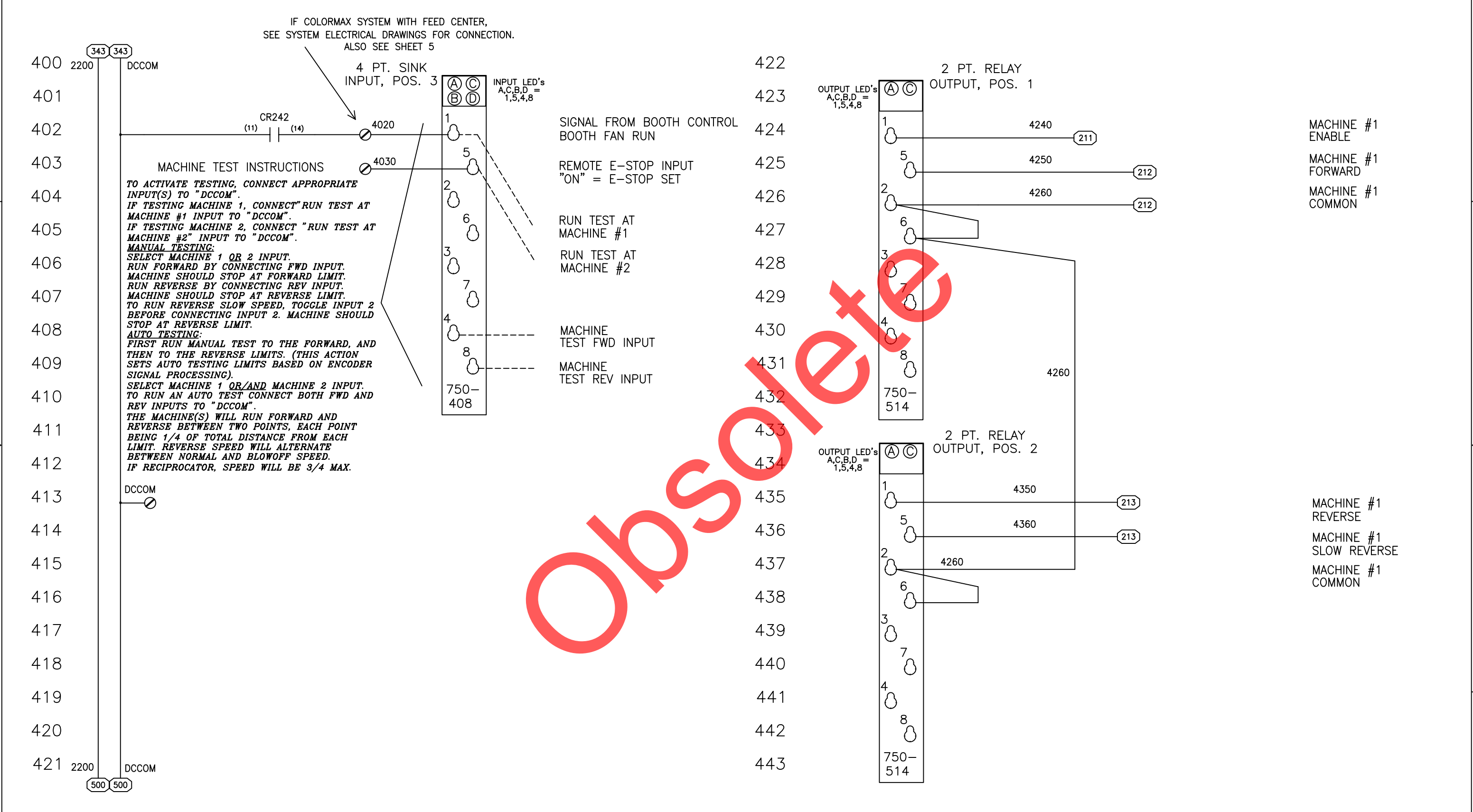


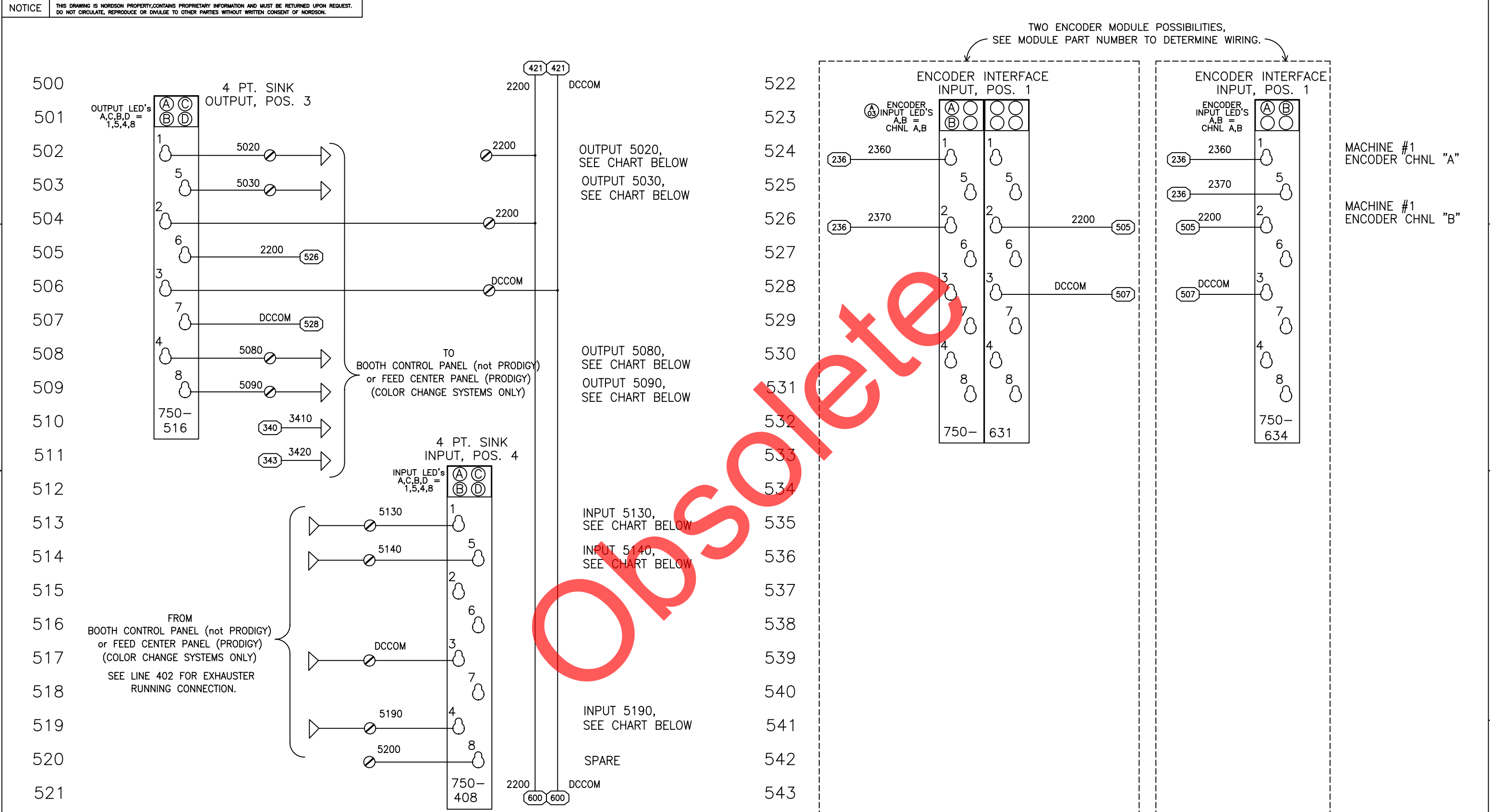
| | | | | | | | |
|--------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|------------------------|--|-------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| SEE SHEET 1 | | X.XXX +/- .030 X.XXX +/- .010 | | DRAWN BY DATE | | CONTROL PANEL, GUN POS, PLUG-IN, iCONTROL | |
| NEXT ASSEMBLY | | MACHINED SURFACES 125° AA | | DAK 18AUG09 | | | |
| FIRST PRODUCT USED ON IN-OUT POSITIONER | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | CHECKED BY APPROVED BY | | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | REL NO PE601746 | | | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | CONTROL NUMBER | | 1098087 | |
| | |  | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | | | REV. A01 | |
| | | | | | | PAGE 2 / 7 | |



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| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-------------------------------------|
| Terminal | I/O | not Prodigy (GM1 & GM2) | Prodigy (GM1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control |
| 5080 | OUTPUT | Ready for Color Change | Spare |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

SIZE

D

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

SEE SHEET 1

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

MACHINED SURFACES 125/AA

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

THREAD LENGTH DIMS. ARE FULL THREAD

DRAWN BY DAK

CHECKED BY

REL NO PE601746

SCALE: NTS

DATE 19AUG09

APPROVED BY

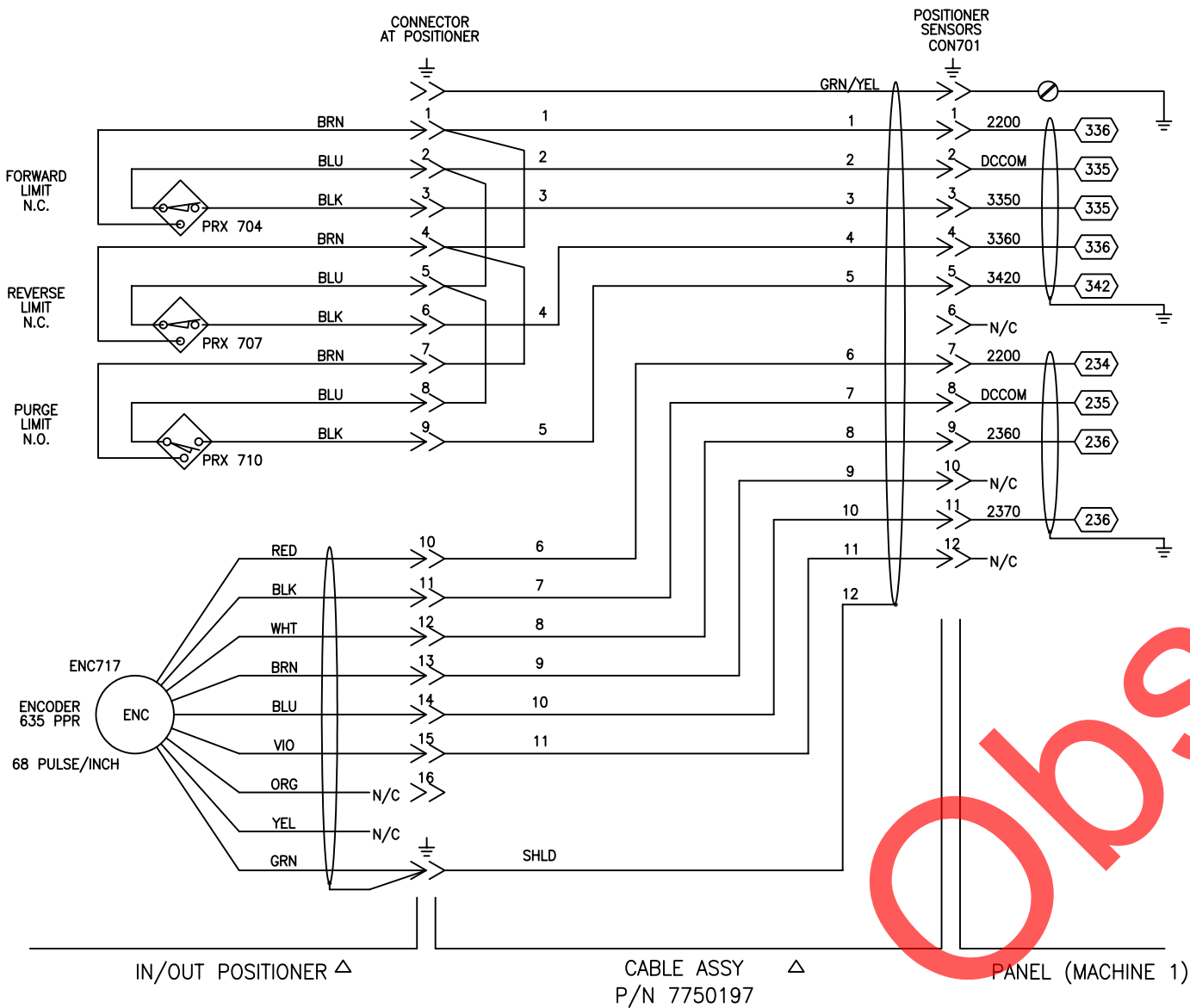
CONTROL NUMBER 1098087

PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING

CONTROL PANEL, GUN POSITIONER, PLUG-IN, iCONTROL

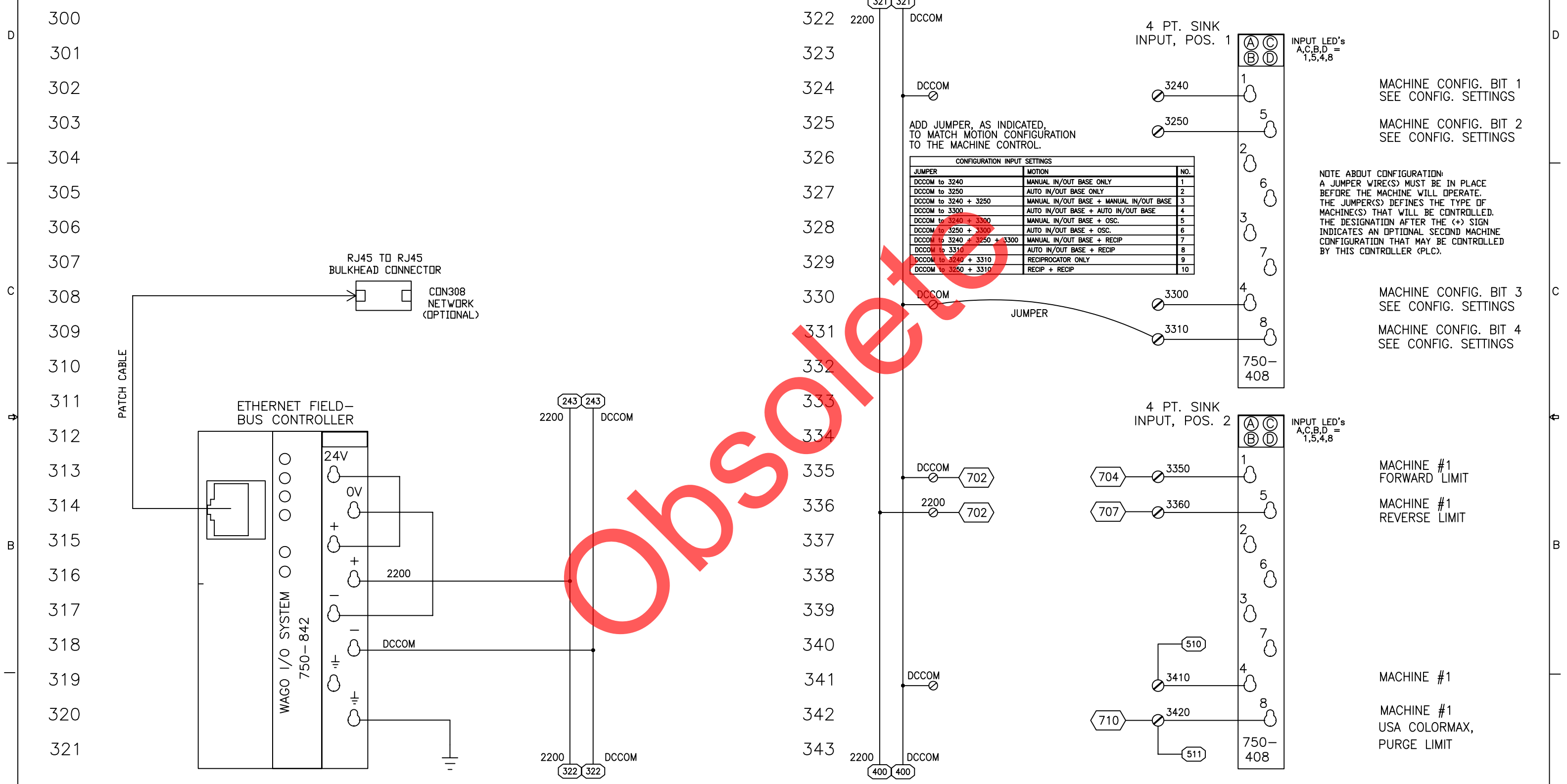
REV. A01

PAGE 5 / 7



LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|--|------------------------------|--|------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D | | NORDSON CORPORATION | |
| | | SIZE | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY DAK DATE 30JUN09 | |
| | | MACHINED SURFACES 125 AA | | CONTROL PANEL, GUN POS, PLUG-IN, iCONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | CHECKED BY BL | | APPROVED BY BL | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | REL NO PE601746 | | CONTROL NUMBER 1098087 | |
| THIRD ANGLE PROJECTION | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 7 / 7 | |



| CONFIGURATION INPUT SETTINGS | | NO. |
|------------------------------|-----------------------------------------|-----|
| JUMPER | MOTION | |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCATOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |

INPUT LED's
A,C,B,D =
1,5,4,8

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE.
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS




MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

MACHINE #1
FORWARD LIMIT

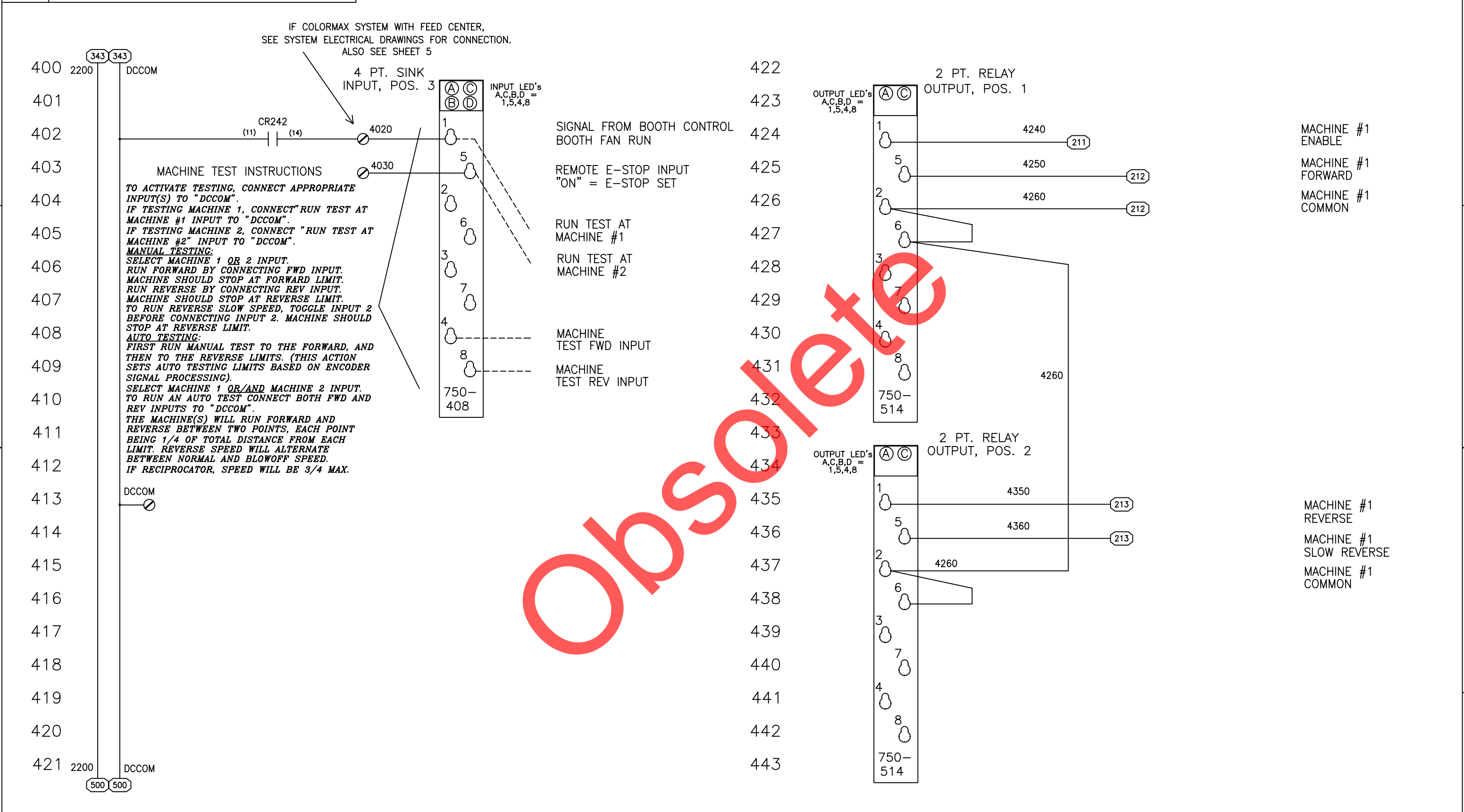
MACHINE #1
REVERSE LIMIT

MACHINE #1

MACHINE #1
USA COLORMAX,
PURGE LIMIT

| | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------|---------------------------------------------------------|----------------|------------|------------------------------------------------------|
| | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED |   | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | | |
| | | | | DRAWN BY BL | | DATE 3JUN05 | | CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL |
| | | | | CHECKED BY BL | | APPROVED BY BL | | |
| | | | | REL NO PE601746 | | | | |
| X.XX +/- .030 X.XXX +/- .010 MACHINED SURFACES 125 AA BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 X.X. | | THREAD LENGTH DIMS. ARE FULL THREAD  | CONTROL NUMBER | | 1097160 | | REV. A01 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 3 / 7 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | | | | | | | |
| | | | | | | | | |

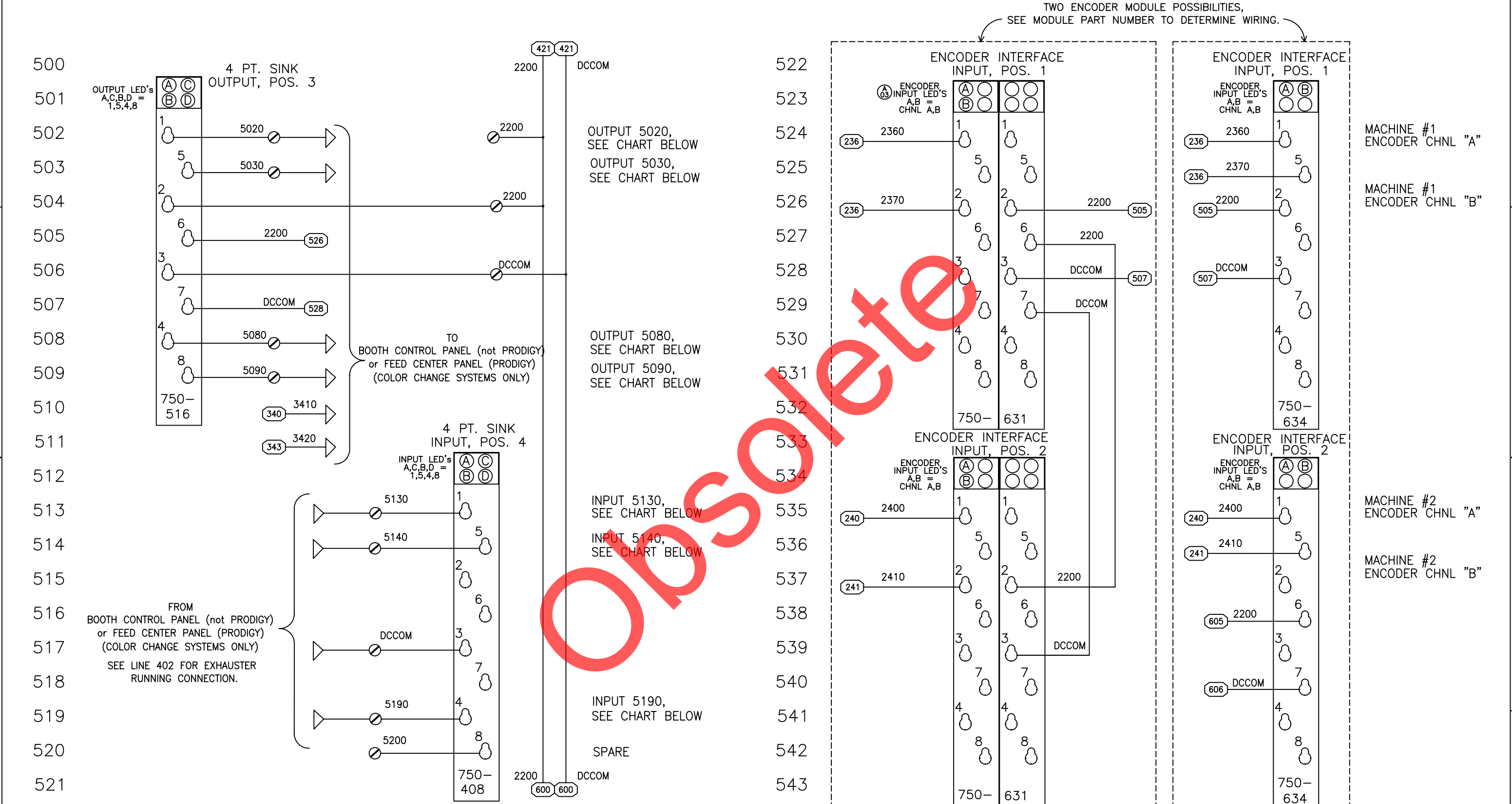
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LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------------|--|---------------------------------------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | DRAWN BY BL DATE 3JUN05 | | CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL | |
| MACHINED SURFACES 125 AA | | CHECKED BY BL APPROVED BY BL | | REL NO PE601746 | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER 1097160 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | SCALE: NTS | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 4 / 7 | |
| | | | | REV. A01 | |

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| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-------------------------------------|
| Terminal | I/O | not Prodigy (GM1 & GM2) | Prodigy (GM1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control |
| 5080 | OUTPUT | Ready for Color Change | Spare |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

X.XX +/- .030 | X.XXX +/- .010

MACHINED SURFACES 125/AA

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

THREAD LENGTH DIMS. ARE FULL THREAD

THIRD ANGLE PROJECTION

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

D SIZE

NORDSON CORPORATION

POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DATE 3JUN05

CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL

REL NO PE601746

CONTROL NUMBER 1097160

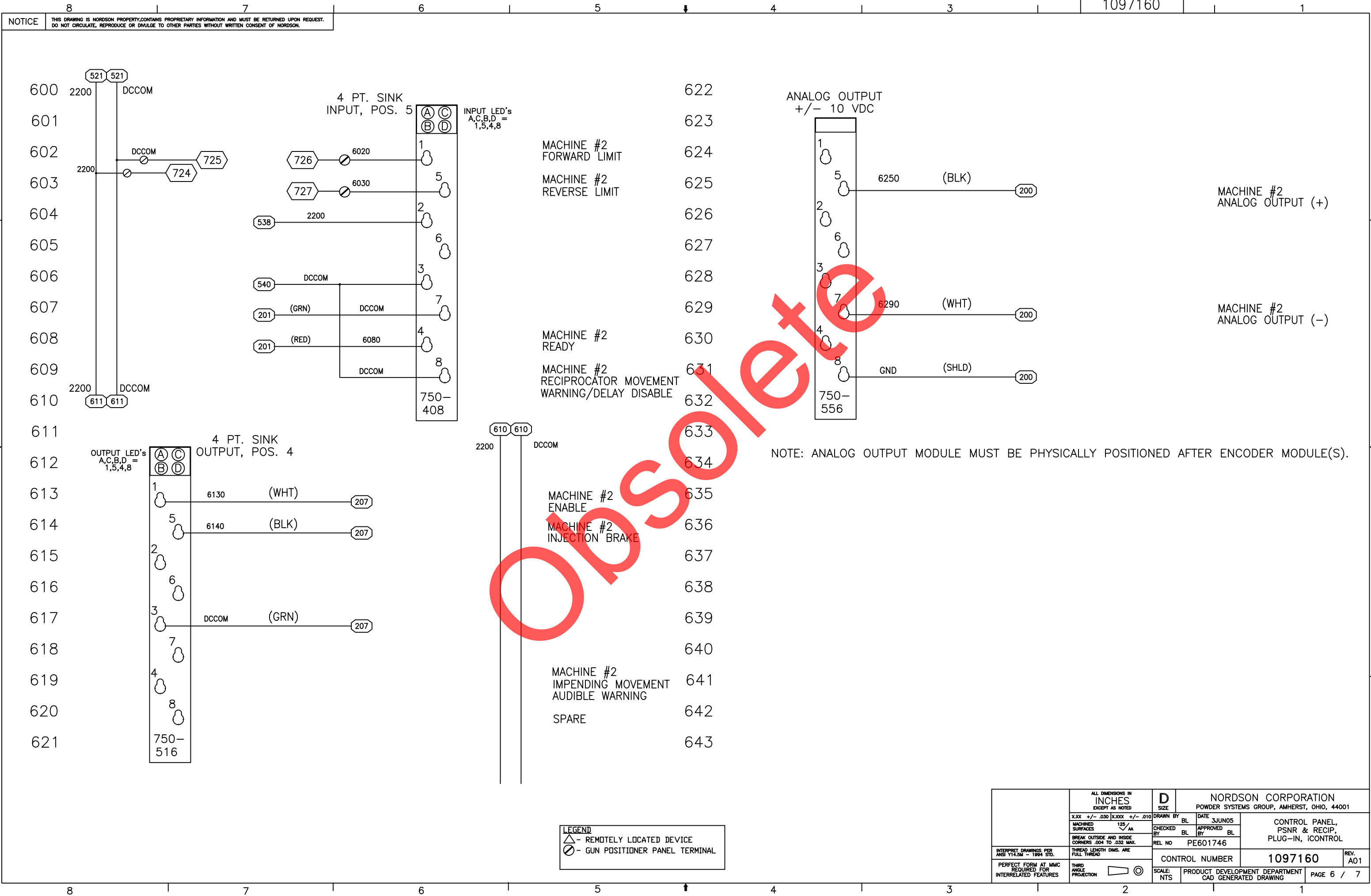
REV. A01

SCALE: NTS

PRODUCT DEVELOPMENT DEPARTMENT

CAD GENERATED DRAWING

PAGE 5 / 7



LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|--|------------------------------------------------------|--|------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION | |
| X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY BL | | DATE 3JUN05 | |
| MACHINED SURFACES 125 AA | | CHECKED BY BL | | APPROVED BY BL | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO PE601746 | | CONTROL PANEL, PSNR & RECIP. PLUG-IN, iCONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER 1097160 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | REV. A01 | |
| SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 6 / 7 | |

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D

D

C

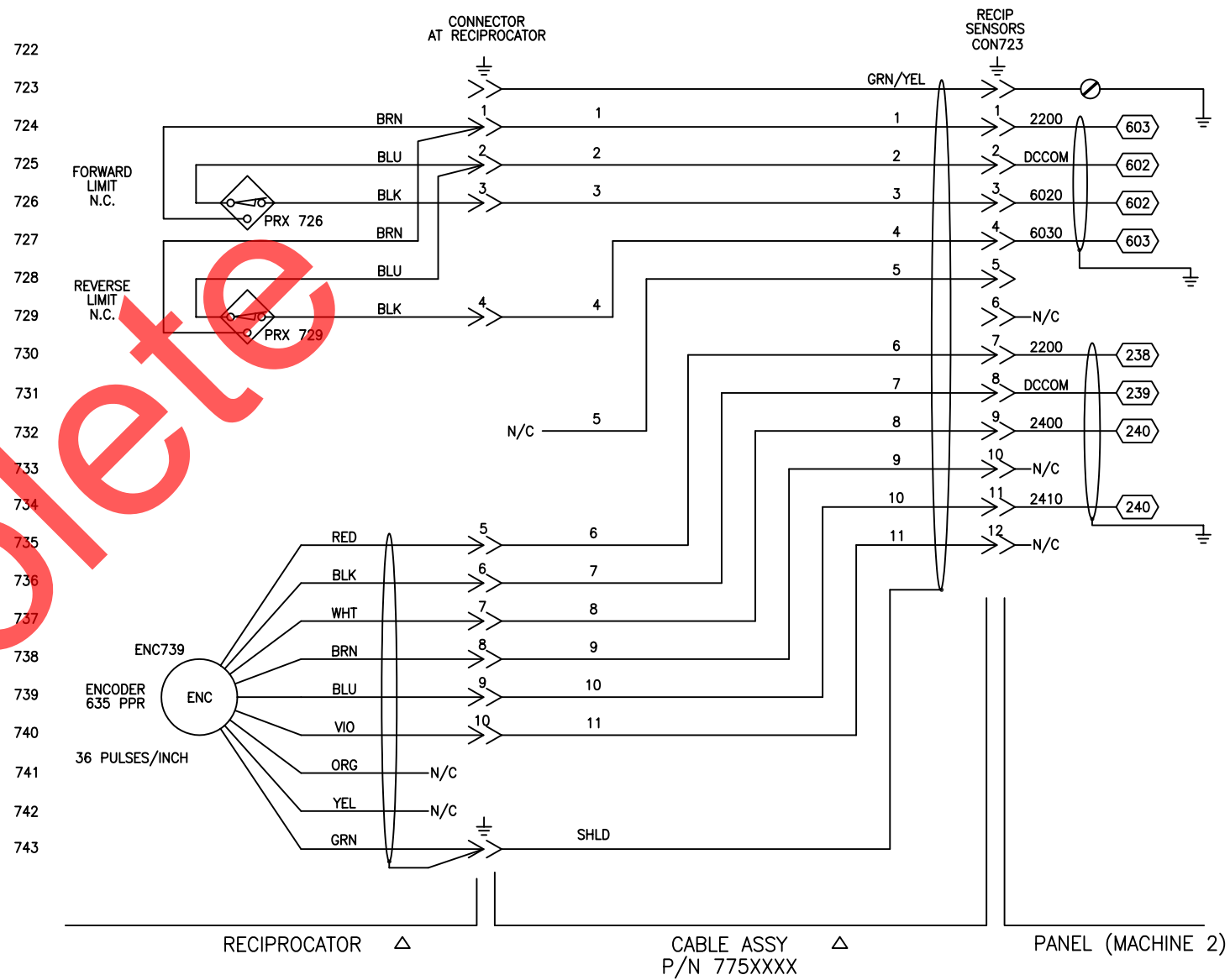
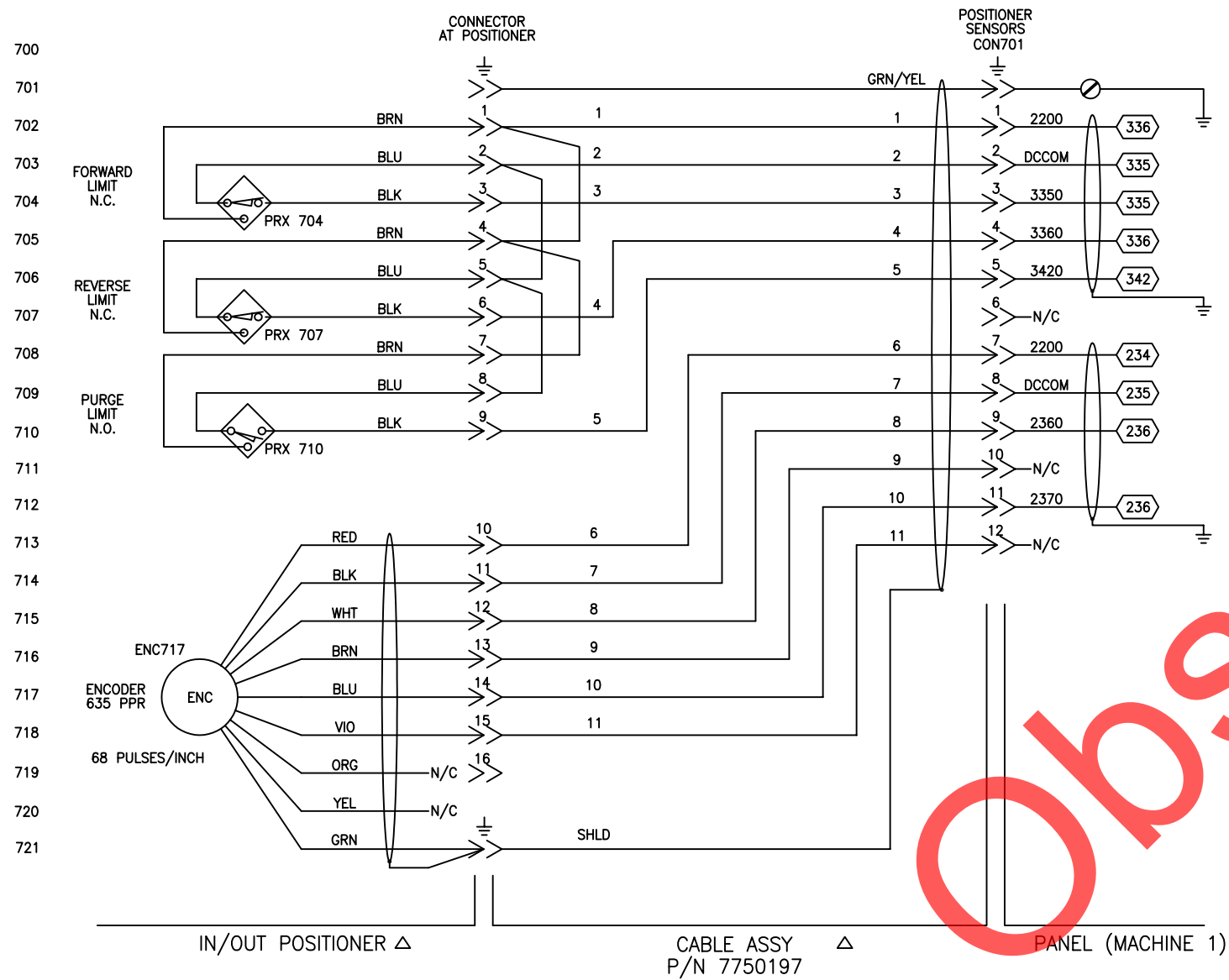
C

B

B

A

A



LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------------|----------------|---------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | DRAWN BY DAK | | DATE 30JUN09 | |
| X.XX +/- .030 | X.XXX +/- .010 | CHECKED BY BL | | APPROVED BY BL | |
| MACHINED SURFACES 125 AA | | REL NO | | CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | PE601746 | | 1097160 | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | REV. A01 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | PAGE 7 / 7 | |

NOTICE

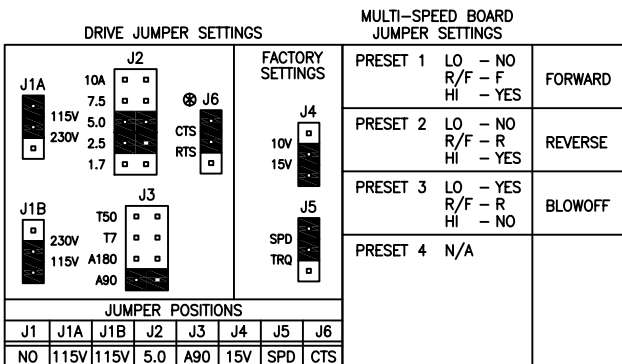
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| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|---------------------|-------------------------------------------------|------|------------------------|------------------|
| 0 | | | REF DWG, ASSY PANEL, GUN POSITIONER | 0 | | 1078407 |
| 1 | | A-1614CH | ENCLOSURE, CONT HINGE, 16x14x6 | 1 | HOFFMAN | 1078420 |
| 2 | | CUSTOM | LABEL SET, GUN POSITIONER | 1 | ----- | 1078684 |
| 3 | | 8002-ISO | TAG, WARNING, ELECT SHOCK HAZARD, 1.00x.88 | 1 | SAFETY LABEL SOLUTIONS | 1075692 |
| 4 | | | LABEL IDENTIFICATION, 1.00 X 2.00 | 1 | | 1005678 |
| 5 | | 0514500000 | TBACCY, DIN RAIL, SLOT, 35x2M-LG | .49M | WEIDMULLER, INC | 239214 |
| 6 | | | SCR, HEX, SELF TAP, 10-32X .500, Z | 6 | | 981137 |
| 7 | | A-16P14 | ENCLACCY, PANEL, 14.75x12.88, 14GA | 1 | HOFFMAN | 1078422 |
| 8 | | F1x3LG6 | WIREDUCT, 1 X 3, PVC, GRAY, SLOTTED | 1FT | PANDUIT | 1090158 |
| 9 | GROUND | PK7GTA | GROUND TERMINAL | 1 | SQUARE D | 1046405 |
| 10 | SC210 | KBMG-212D WITH 8833 | CONTROLLER, DC DRIVE W/ SP BD, GUN PSNR | 1 | KB ELECTRONICS | 1046921 |
| 11 | | | SCR, HEX, SELF TAP, SLTD, 8-32X.50, TYPE T, Z | 4 | | 1083981 |
| 12 | CB207 | 1DU10 | CIRCUIT BREAKER, 1 POLE, 10 AMP, 10-20 xl n | 1 | ALTECH | 1078518 |
| 13 | CB210 | 1CU8 | CIRCUIT BREAKER, 1 POLE, 8 AMP | 1 | ALTECH | 1092954 |
| 14 | | PSSR-SD24 | POWER SUPPLY, 60W | 1 | IDEC | 1092955 |
| 15 | | | MODULE GROUP, I/O, WAGO | 1 | WAGO | 1078669 |
| 16 | | C1LG6 | COVER, 1 | 1FT | PANDUIT | 1046394 |
| 17 | FU217 | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4 X 1-1/4" FUSES | 1 | ALLEN BRADLEY | 341366 |
| 18 | FU217 | MDL-1-R | FUSE, 2AMP, SLOBL0, 250V, 3AG, 313 | 1 | BUSSMANN | 939016 |
| 19 | FU217 | 1492-N37 | END, PLATE, AB FUSE | 1 | ALLEN BRADLEY | 341367 |
| 20 | | 1492-J4 | TERMINAL BLK, GRAY, IEC, 22-10 AWG, JG4 | 30 | ALLEN BRADLEY | 1075583 |
| 21 | | 1492-EAJ35 | ANCHOR, END | 2 | ALLEN BRADLEY | 306318 |
| 22 | CR242 | CR242 | RELAY, TERM BLK, SPDT, 110/125V AC/DC | 1 | ALLEN BRADLEY | 1071600 |
| 23 | | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, IEC, 22-10 AWG, JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 24 | | 1492-J4-Y | TERMINAL BLK, YELLOW, IEC, 22-10 AWG, JG4 | 2 | ALLEN BRADLEY | 1075694 |
| 25 | | 1492-EBJ3 | BARRIER, TBACCY, END, DIN, GRAY, J SERIES | 2 | ALLEN BRADLEY | 1075584 |
| 26 | | | WIRE, 10SC, 18GA, BLUE, 600V | 31.5 | | 335174 |
| 27 | | | STRND WIRE, 14 AWG, YEL, 600V, 105C | 3 | | 1079956 |
| 28 | | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 4.75 | | 931191 |
| 29 | | | WIRE, VINYL, 14AWG, RED | 7.5 | | 931296 |
| 30 | | | WIRE, VINYL, 14AWG, WHITE | 3 | | 931268 |
| 31 | | | WIRE, VINYL, 18AWG, RED | 9 | | 931170 |
| 32 | | | STRAP CABLE, .875 DIA | 7 | | 939110 |
| 33 | | UTPCH2 | CABLE, RJ45 TO RJ45, 2FT | 1 | PANDUIT | 282960 |
| 34 | | MX5-F02 | CONNECTOR, ETHERNET, RJ245-TO IDC, CAT5 | 1 | SIEMON | 1058224 |
| 35 | | MX-SM1-02 | BOX, SURFACE MOUNT, ETHERNET | 1 | SIEMON | 1078555 |
| 36 | | | TERMINAL, RINGTONG, INS, 16-14, 10 | 1 | | 933054 |
| 37 | | | NUT, HEX, MACH, #10-32, BRASS | 2 | | 984129 |
| 38 | | | WASHER, LK, E, SPT, #10, STL, NI | 1 | | 983120 |
| 39 | | | WASHER, FLT, E, 203X.406X.040, BR | 1 | | 983021 |
| 40 | | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | ALLEN BRADLEY | 1078531 |
| 41 | | | QUICKCONN, INS, FEM, 250"X.032", 14-16AWG | 4 | | 1049966 |
| 42 | | | TERMINAL, FLG, SPADE, INS, 16-14, 6 | 1 | | 933184 |
| 43 | | | LABEL SET, PANEL WIRING FOR 1055889 | 1 | | 1079873 |
| 44 | | | WASHER, LK, E, INT, #10, STL, ZN | 4 | | 983124 |
| 45 | | | LABEL, BLANK, 3.00X5.00 | 1 | | 603348 |
| 46 | | | MOUNT, CABLE STRAP | 1 | | 242837 |
| 47 | | | CONTROLLER, PROGRAMMED, GUN POS'R ICONTROL | 1 | | 1055963 |
| 48 | | | CAP, FLUSH, 7/8 DIA | 3 | | 900809 |
| 49 | CR502 | 700-HLS1Z24 | RELAY, SOLID STATE | 1 | ALLEN BRADLEY | 1092942 |

★ CUT JUMPER AS REQUIRED FOR REQUIRED LENGTHS.

*ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |



⊗ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

MULTI-SPEED BOARD JUMPER SETTINGS

| | | |
|----------|--------------------------------|---------|
| PRESET 1 | LO - NO R/F - F HI - YES | FORWARD |
| PRESET 2 | LO - NO R/F - R HI - YES | REVERSE |
| PRESET 3 | LO - YES R/F - R HI - NO | BLOWOFF |
| PRESET 4 | N/A | |

ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

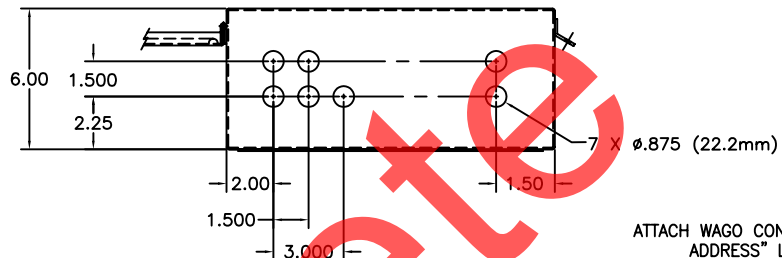
FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

| MULTI SPEED BOARD POT | %CLOCKWISE |
|-----------------------|------------|
| PRE 1 | 50-100% |
| PRE 2 | 50-100% |
| PRE 3 | 50% |
| PRE 4 | N/A |

| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |

PATCH CABLE, RJ45 CONNECTOR

CAT5 TERMINATION MODULE/BOX MOUNTED TO INSIDE WALL, NEAR ENCLOSURE DOOR.



ATTACH WAGO CONTROLLER TEAROFF "HARDWARE ADDRESS" LABEL TO THIS SURFACE.

NORDSON PART NUMBER LABEL

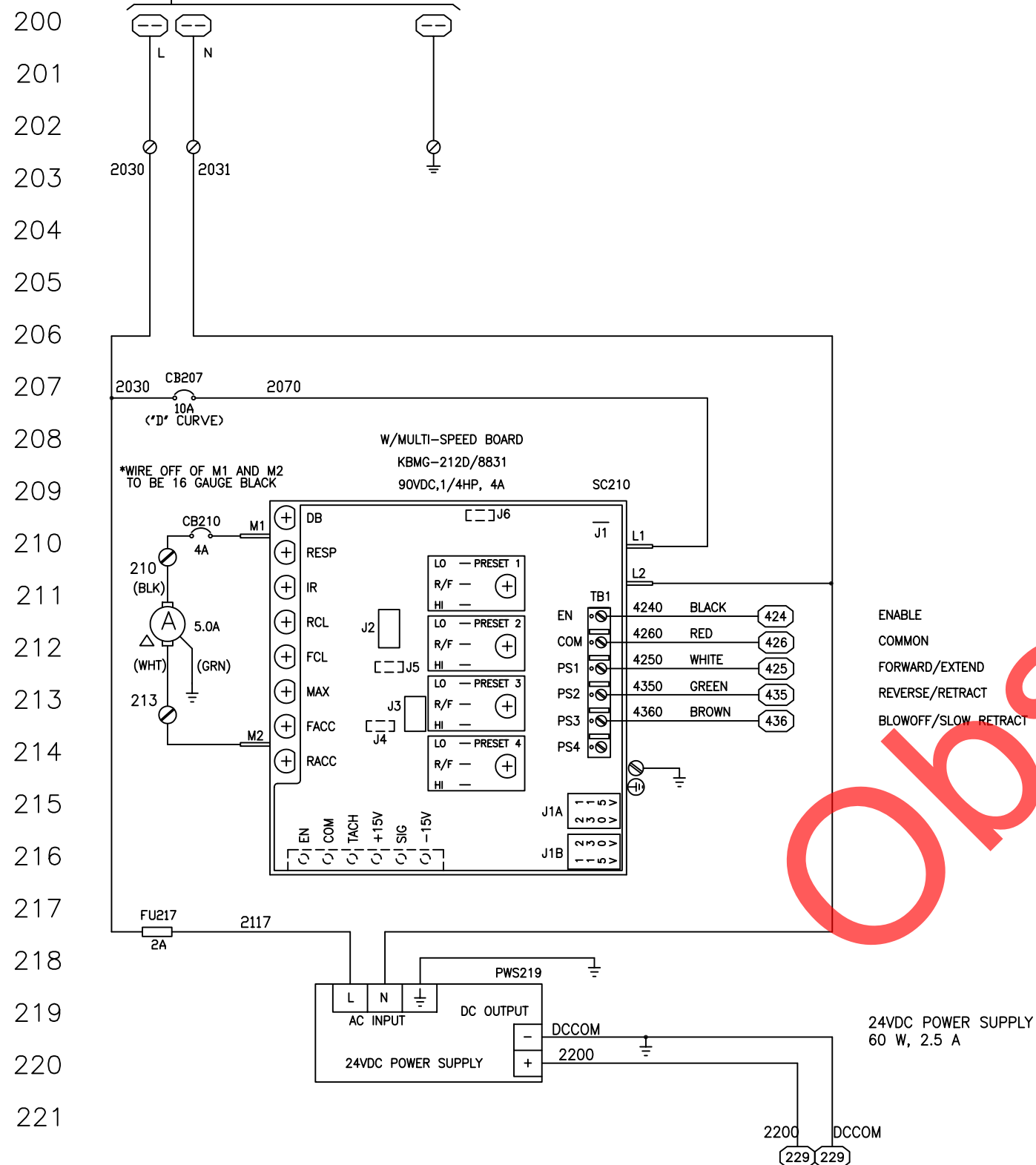
NOTES

- ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.
- THIS PANEL IS APPROPRIATE FOR TOP DOWN VERTICAL POSITIONERS & SPECIAL 1/2HP IN/OUT POSITIONERS.
- THIS PANEL SUPPORTS (1) VERTICAL POSITIONER.

| | | | | |
|--------------------------------------------------------|-----|-----------------|--------------------------------------------|------------------------------------------------------|
| ITEM | ICT | PART NO. | DESCRIPTION | QTY. |
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | | | |
| NEXT ASSEMBLY | | DRAWN BY RF | DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | CHECKED BY GS | APPROVED BY GS | |
| IN-OUT POSITIONER | | REL NO PE601307 | CONTROL PANEL, TOP DN POS, 1/2HP, ICONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | CONTROL NUMBER | | 1092923 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: FULL | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING |
| | | PAGE 1 / 6 | | REV. A01 |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

USERS 120V
1PH, 60 Hz,
10 AMP SUPPLY

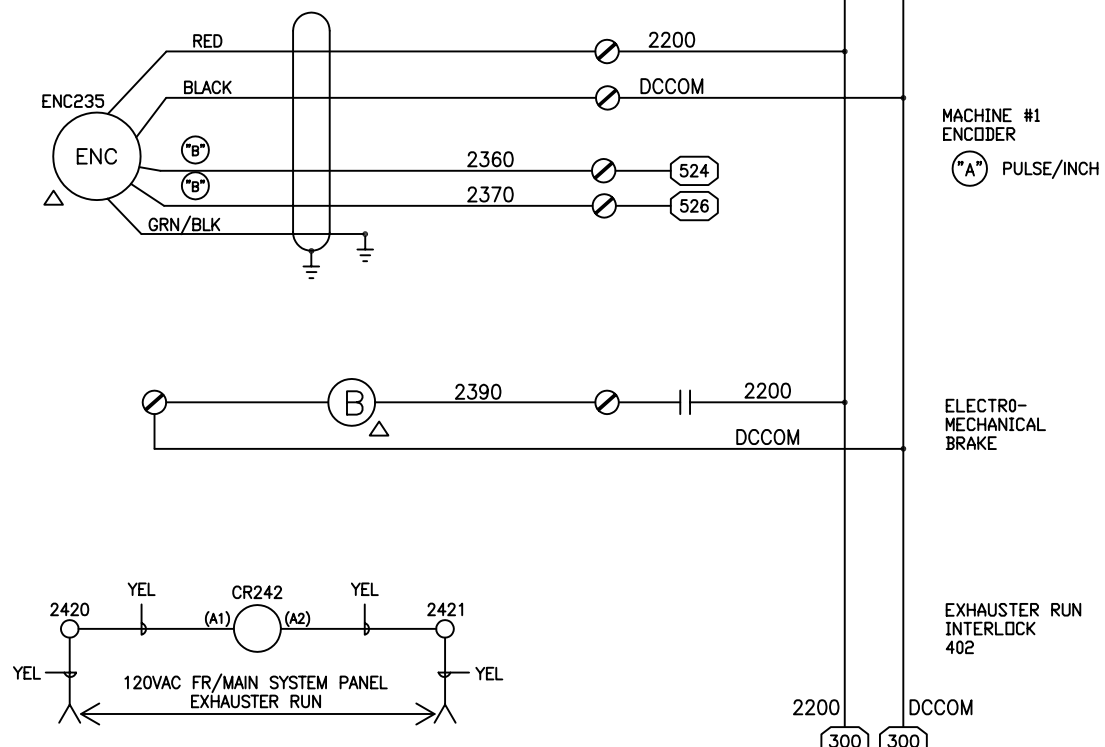


NOTE

1. CHECK MOTOR WIRING.

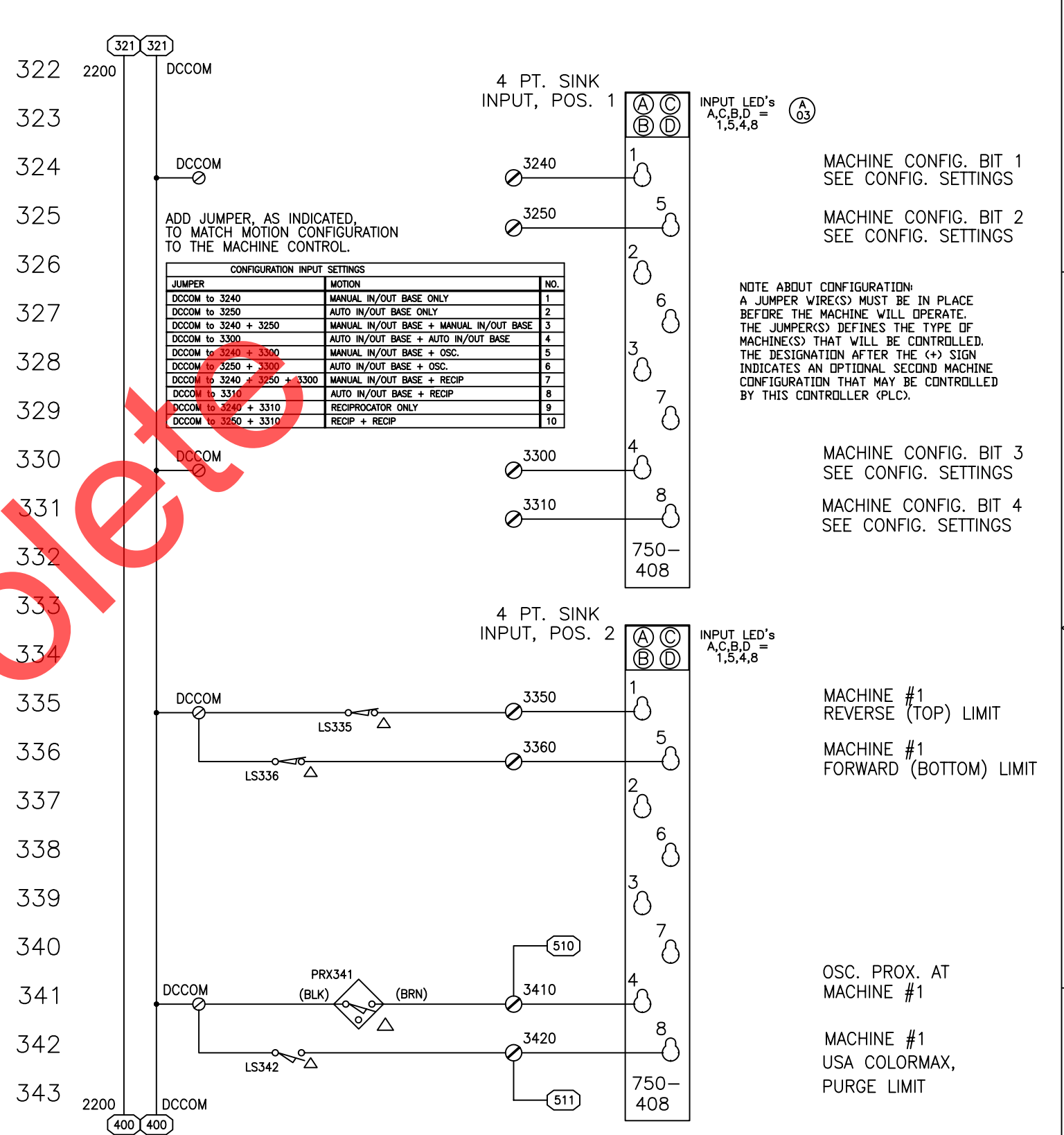
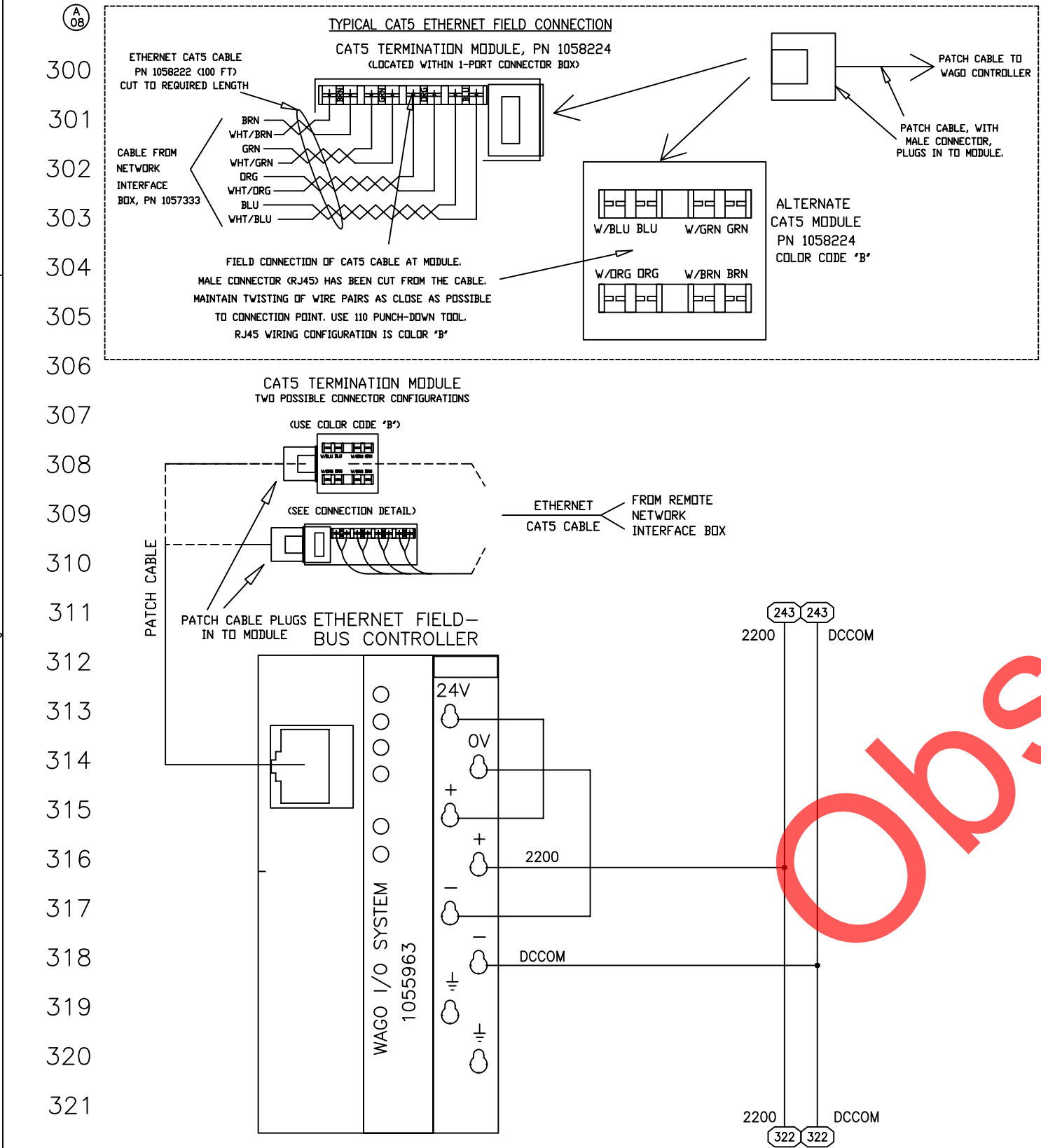
LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN/MOVER PANEL TERMINAL

| ENCODER RESOLUTION AND WIRING | | |
|-------------------------------|------------------|-------------------------------|
| BASE TYPE | PULSE/INCH ("A") | WIRING ("B") |
| RACK & PINION 1018682 | 262 | 2360 = GREEN 2370 = ORANGE |
| BELT-DRIVE 1056206 | 224 | 2360 = ORANGE 2370 = GREEN |
| TOP/DOWN VERTICAL POSITIONER | 143 | 2360 = ORANGE 2370 = GREEN |



| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION | |
|--------------------------------------------------------|--|----------------------------------------------------|--|-----------------------|--|
| X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY RF | | DATE 03NOV08 | |
| MACHINED SURFACES 125 AA | | CHECKED BY GS | | APPROVED BY GS | |
| NEXT ASSEMBLY | | REL NO PE601307 | | CONTROL NUMBER | |
| FIRST PRODUCT USED ON IN-OUT POSITIONER | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | 1092923 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | REV. A01 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | PAGE 2 / 6 | |
| SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT | | CAD GENERATED DRAWING | |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.



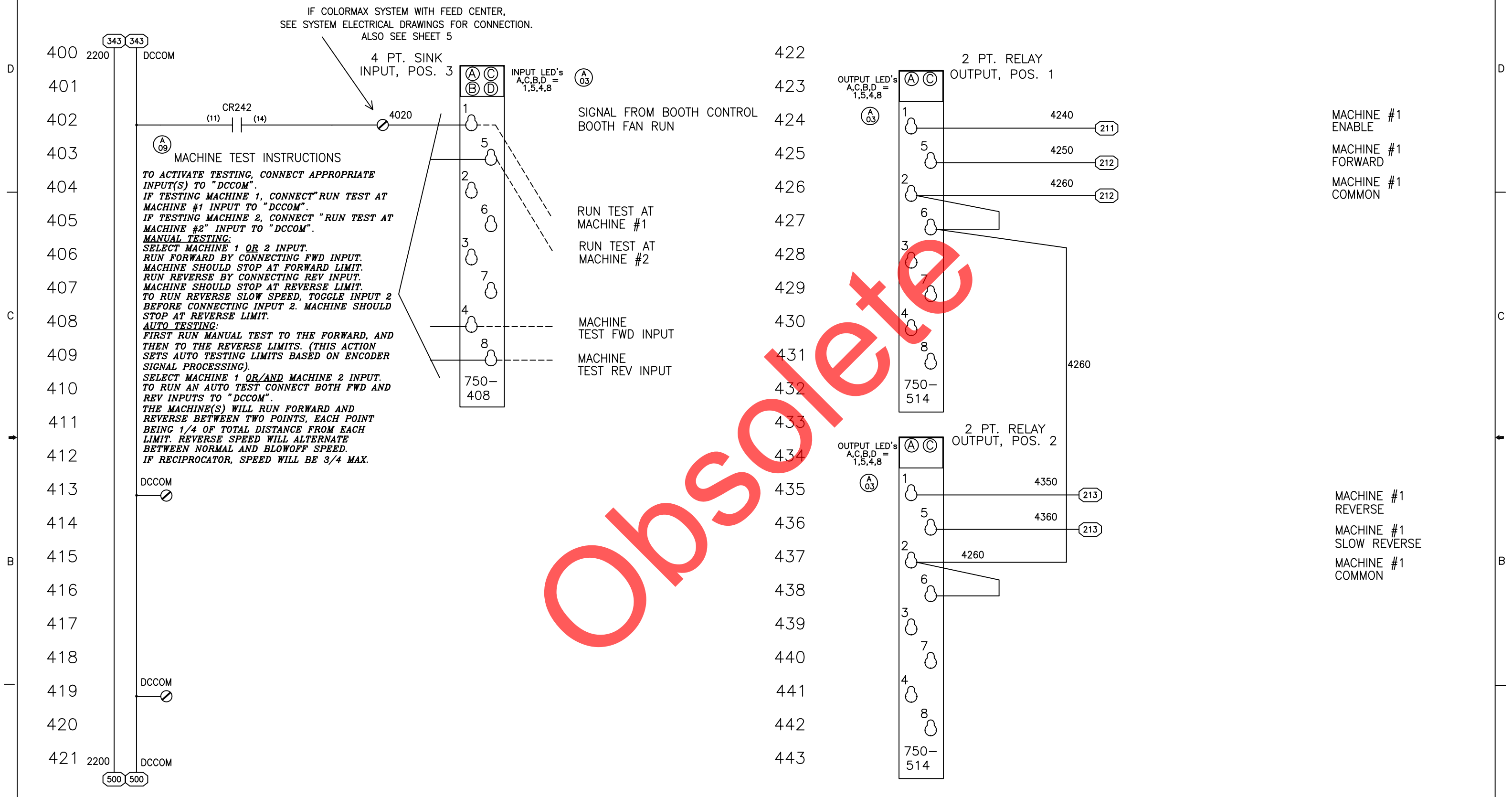
LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUNDOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|--|------------------------|--|----------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY RF | | DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | CHECKED BY GS | | APPROVED BY GS | |
| IN-OUT POSITIONER | | REL NO PE601307 | | CONTROL NUMBER 1092923 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | REV. A01 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 3 / 6 | |

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LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN/MOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|----------------|---------------------------------------------------------|-------------------------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | RF | DATE | 03NOV08 |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125 AA | CHECKED BY | GS | APPROVED BY | GS |
| IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE601307 | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1092923 | REV. A01 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 4 / 6 |

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D

C

B

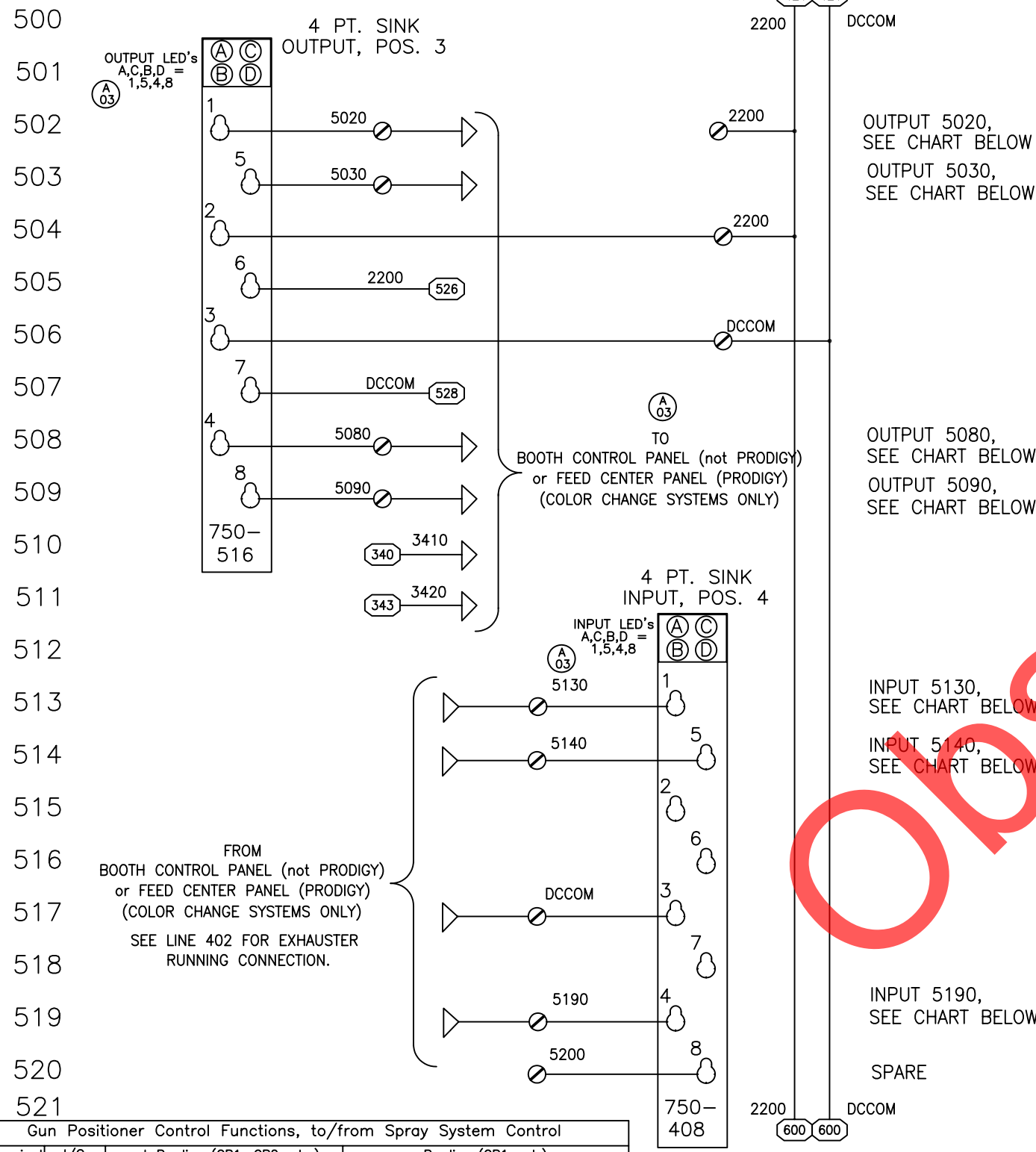
A

D

C

B

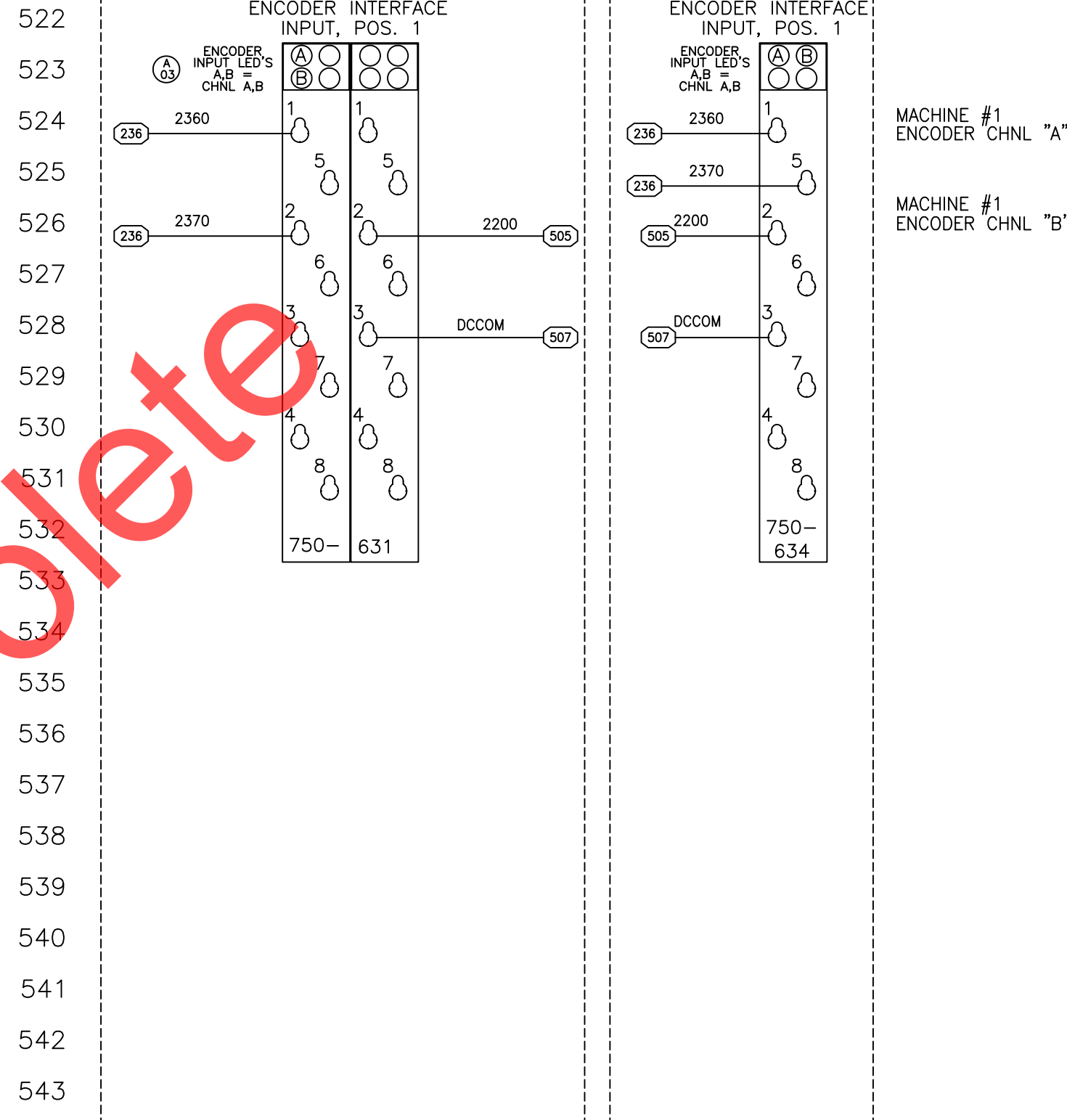
A



| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-----------------------------------------|
| Terminal | I/O | not Prodigy (GP1, GP2, etc.) | Prodigy (GP1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | * Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control (all GP's) |
| 5080 | OUTPUT | Ready for Color Change | Color Change Start From iControl |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

* "Mechanical Brake Control" function active if vertical gun positioner. If Oscillator, then brake function is disabled, positioner is not vertical.

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL



| | | | | | |
|--------------------------------------------------------|--|-------------------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY RF | | DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | CHECKED BY GS | | APPROVED BY GS | |
| IN-OUT POSITIONER | | REL NO PE601307 | | CONTROL PANEL, TOP DN POS, 1/2HP, iCONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER 1092923 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | SCALE: NTS | |
| | | | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 5 / 6 | |

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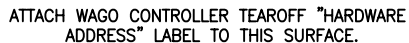
| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |



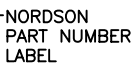
| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |

IF NECESSARY, ADJUST "RESP" —
UPWARD TO CORRECT FOR
DRIFTING OR RESPONSE PROBLEMS
WITH THE MACHINE MOTION.

1. ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.
2. THIS PANEL IS APPROPRIATE FOR BOTTOM UP VERTICAL POSITIONERS WITH 1/2HP MOTOR.
3. THIS PANEL SUPPORTS (1) VERTICAL POSITIONER.

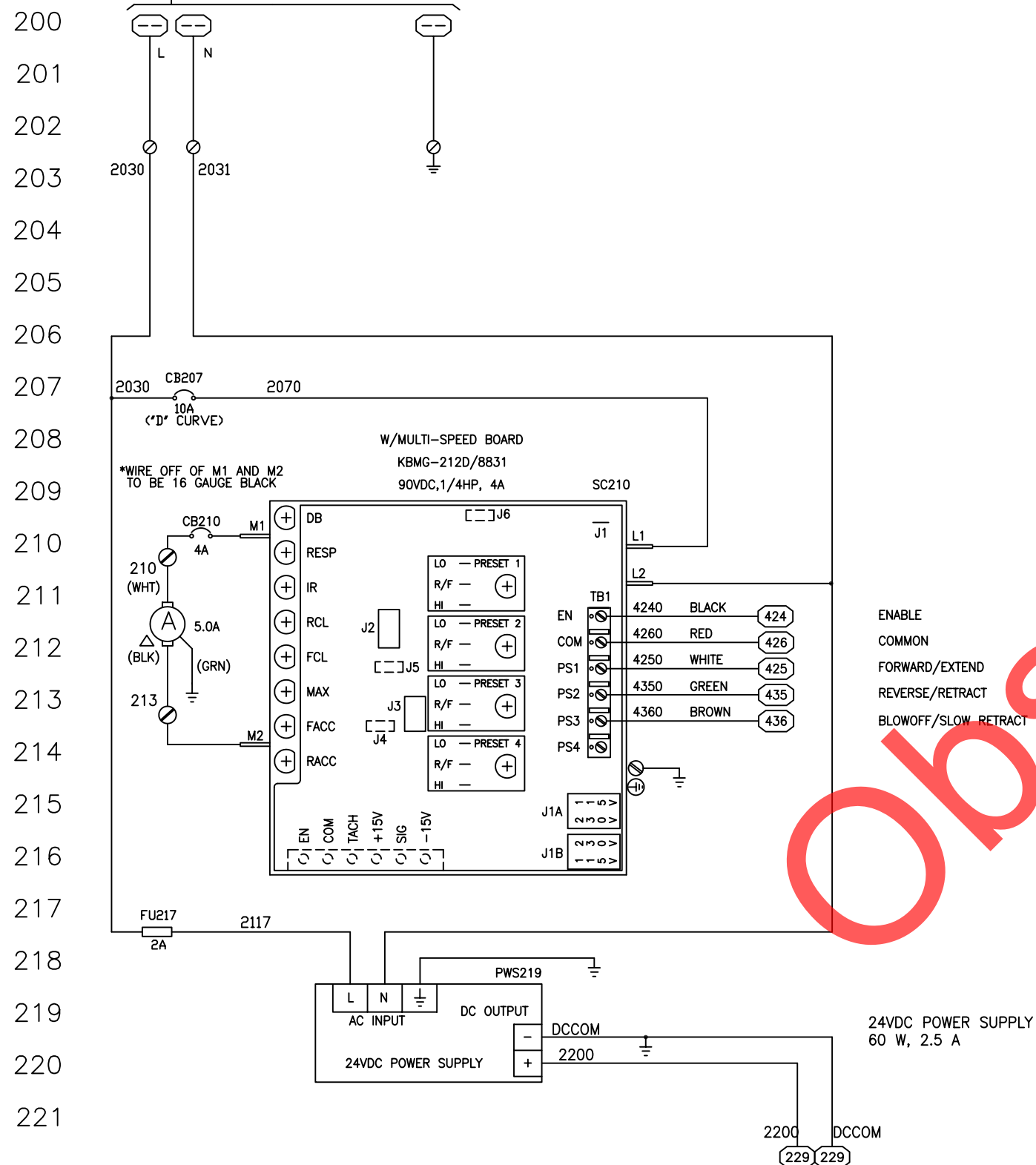


| |
|-------|
| PE |
| 2030 |
| 2031 |
| 2420 |
| 2421 |
| 210 |
| 213 |
| DCCOM |
| DCCOM |
| DCCOM |
| DCCOM |
| DCCOM |
| 2200 |
| 2200 |
| 2360 |
| 2370 |
| 3240 |
| 3250 |
| 3300 |
| 3310 |
| 3350 |
| 3360 |
| 3410 |
| 3420 |
| 4020 |
| 5020 |
| 5030 |
| 5080 |
| 5090 |
| 5130 |
| 5140 |
| 5190 |
| 5200 |

[illegible]

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USERS 120V
1PH,60 Hz,
10 AMP SUPPLY

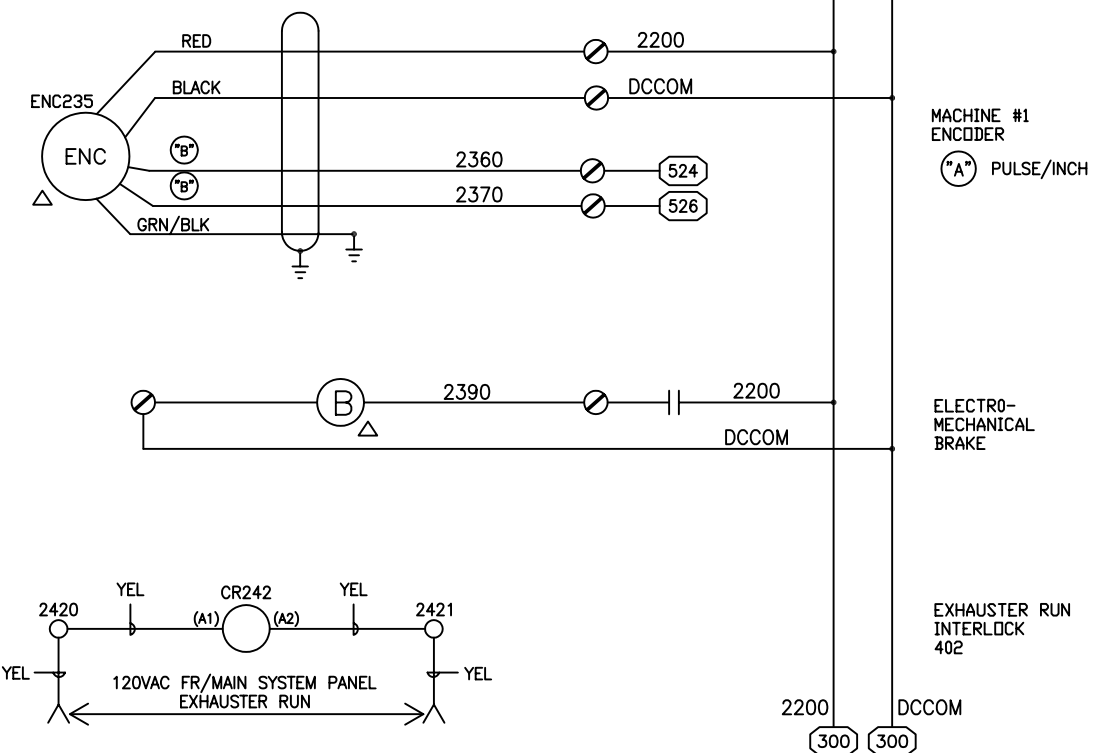




NOTE

1. CHECK MOTOR WIRING.


ENCODER RESOLUTION AND WIRING


| BASE TYPE | PULSE/INCH (A) | WIRING (B) |
|---------------------------------|----------------|-------------------------------|
| RACK & PINION 1018682 | 262 | 2360 = GREEN 2370 = ORANGE |
| BELT-DRIVE 1056206 | 224 | 2360 = ORANGE 2370 = GREEN |
| TOP DOWN VERTICAL POSITIONER | 143 | 2360 = ORANGE 2370 = GREEN |



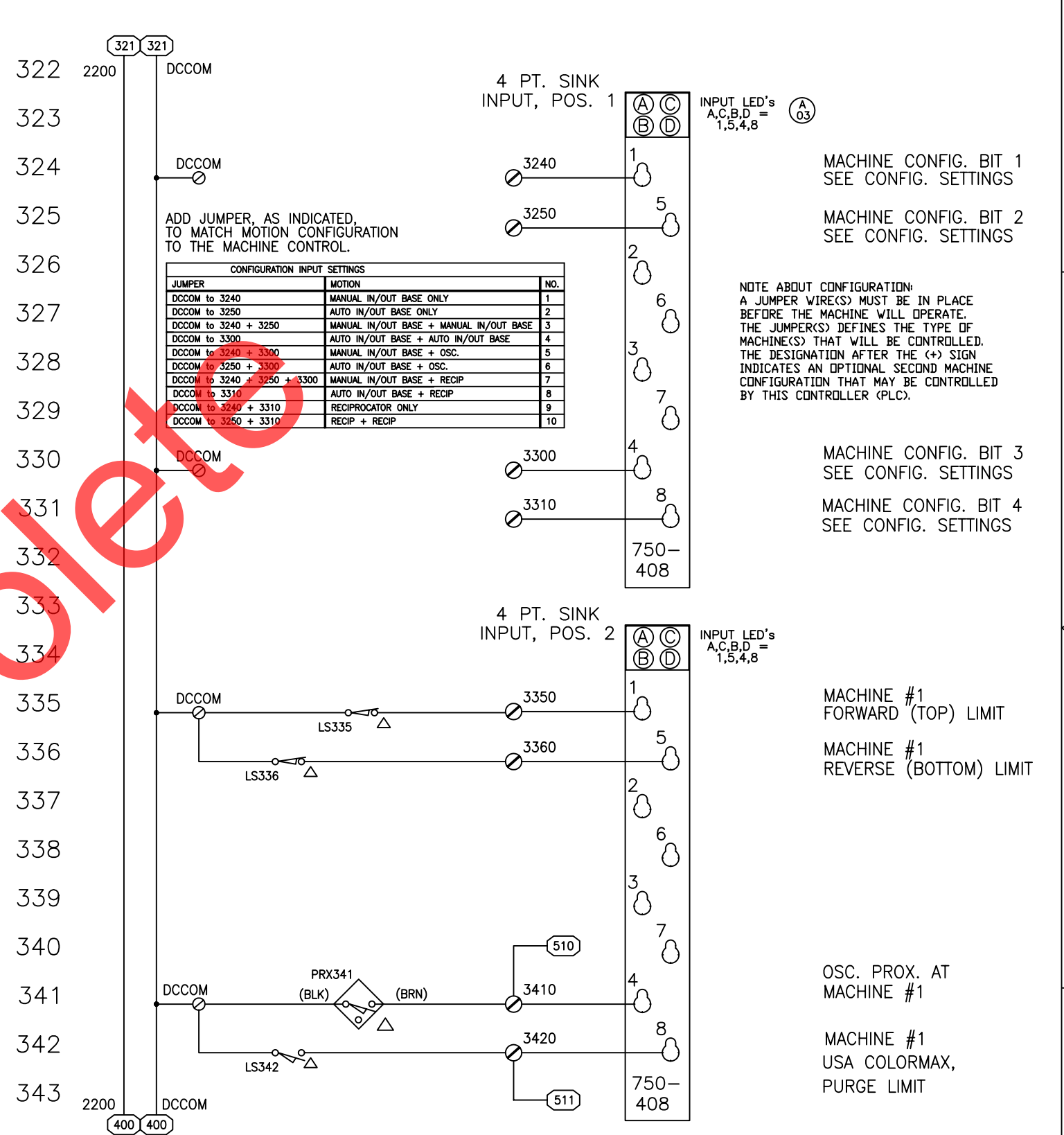
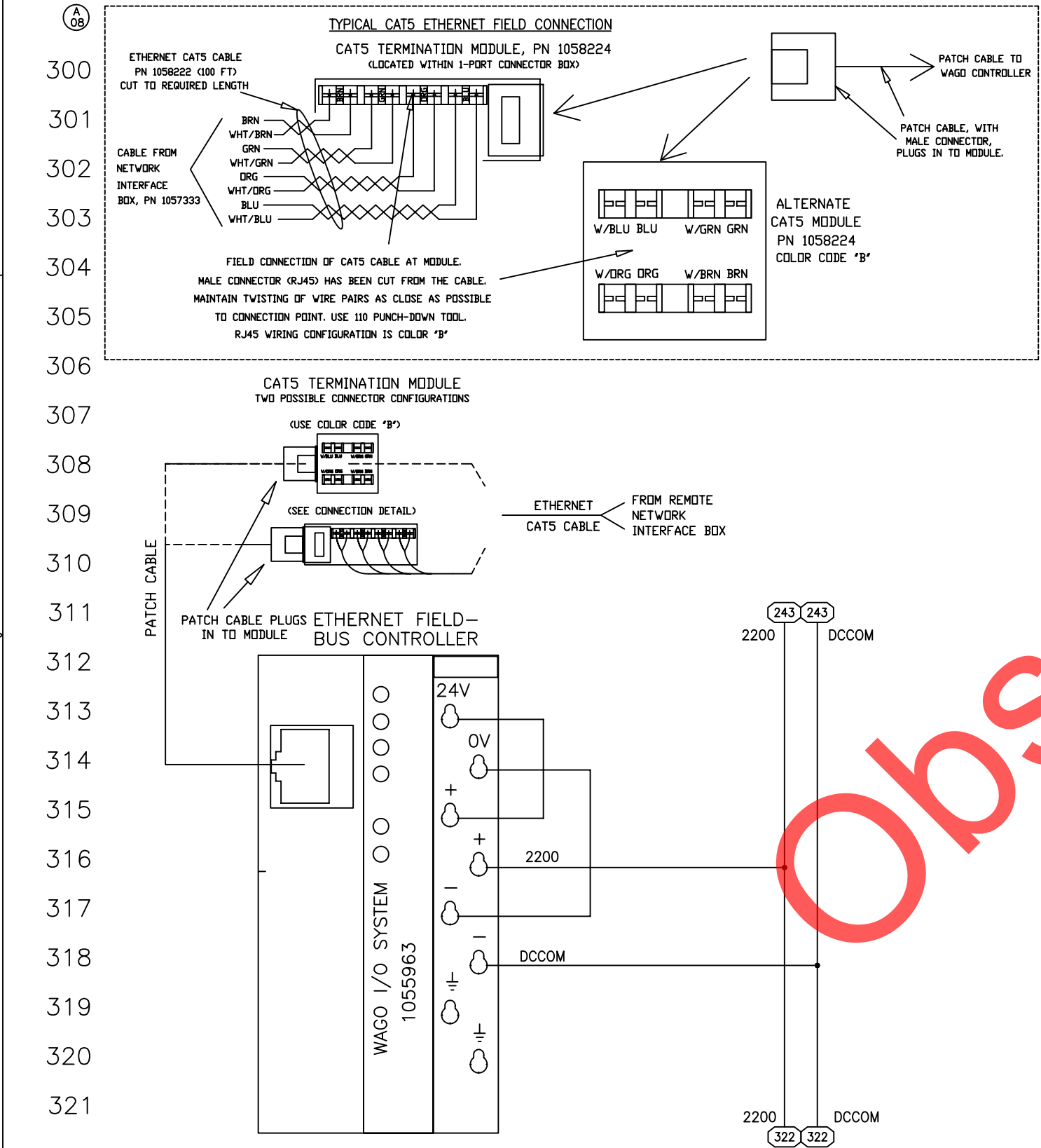
| | | | | |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------|----------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | | DRAWN BY RF DATE 03NOV08 CHECKED BY GS APPROVED BY GS REL NO PE601307 | |
| NEXT ASSEMBLY FIRST PRODUCT USED ON IN-OUT POSITIONER | XXX +/- .030 XXXX +/- .010 SURFACES MACHINED  BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | CONTROL PANEL, BOT UP POS, 1/2HP, CONTROL | | |
| INTERPRET DRAWINGS PER ANSI Y14.4M - 1994 STD. | THIRD ANGLE PROJECTION  | CONTROL NUMBER 1092924 | | REV. A01 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | SCALE: NTS PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 2 / 6 | | |

LEGEND

 - REMOTELY LOCATED DEVICE

 - GUNMOVER PANEL TERMINAL

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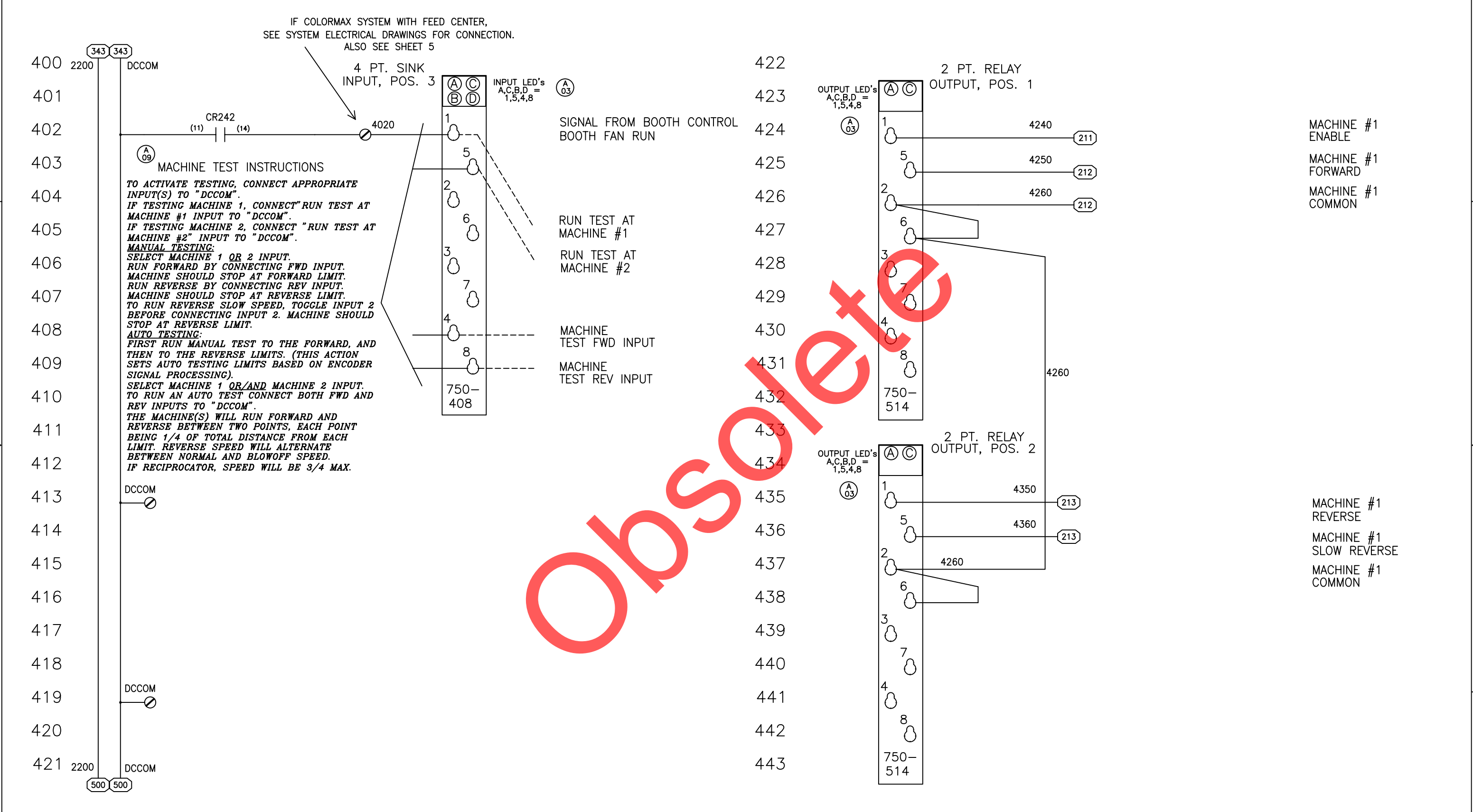


LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUNDOVER PANEL TERMINAL

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LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|----------------|---------------------------------------------------------|-------------------------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | RF | DATE | 03NOV08 |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125 AA | CHECKED BY | GS | APPROVED BY | GS |
| IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE601307 | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1092924 | REV. A01 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 4 / 6 |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

D

C

B

A

D

C

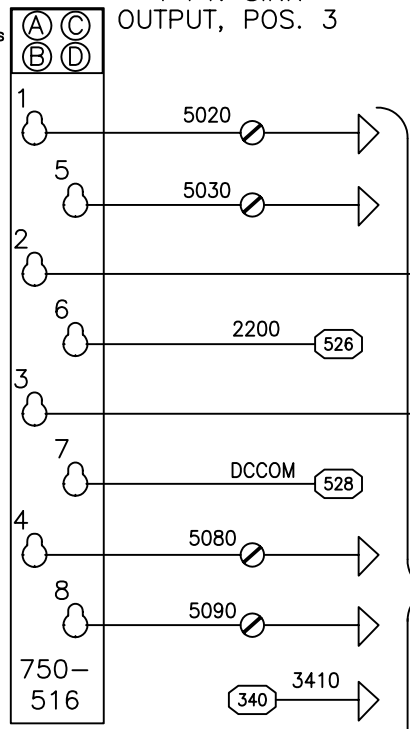
B

A

500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521

OUTPUT LED's
A, C, B, D =
1, 5, 4, 8

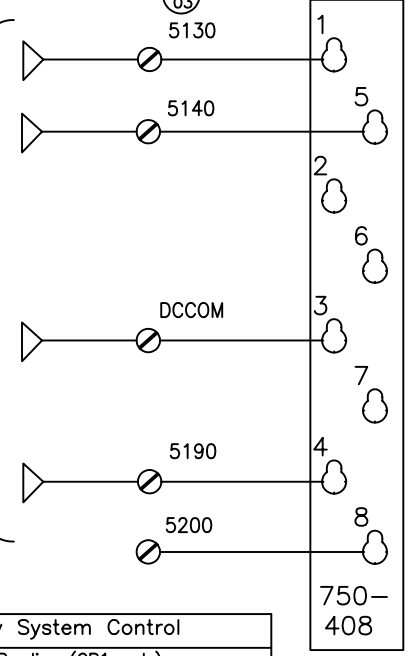
4 PT. SINK
OUTPUT, POS. 3



TO
BOOTH CONTROL PANEL (not PRODIGY)
or FEED CENTER PANEL (PRODIGY)
(COLOR CHANGE SYSTEMS ONLY)

4 PT. SINK
INPUT, POS. 4

INPUT LED's
A, C, B, D =
1, 5, 4, 8



FROM
BOOTH CONTROL PANEL (not PRODIGY)
or FEED CENTER PANEL (PRODIGY)
(COLOR CHANGE SYSTEMS ONLY)
SEE LINE 402 FOR EXHAUSTER
RUNNING CONNECTION.

| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-----------------------------------------|
| Terminal | I/O | not Prodigy (GP1, GP2, etc.) | Prodigy (GP1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | * Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control (all GP's) |
| 5080 | OUTPUT | Ready for Color Change | Color Change Start From iControl |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

* "Mechanical Brake Control" function active if vertical gun positioner.
If Oscillator, then brake function is disabled, positioner is not vertical.

A11

421 421

2200 DCCOM

OUTPUT 5020,
SEE CHART BELOW
OUTPUT 5030,
SEE CHART BELOW

OUTPUT 5080,
SEE CHART BELOW
OUTPUT 5090,
SEE CHART BELOW

INPUT 5130,
SEE CHART BELOW

INPUT 5140,
SEE CHART BELOW

INPUT 5190,
SEE CHART BELOW

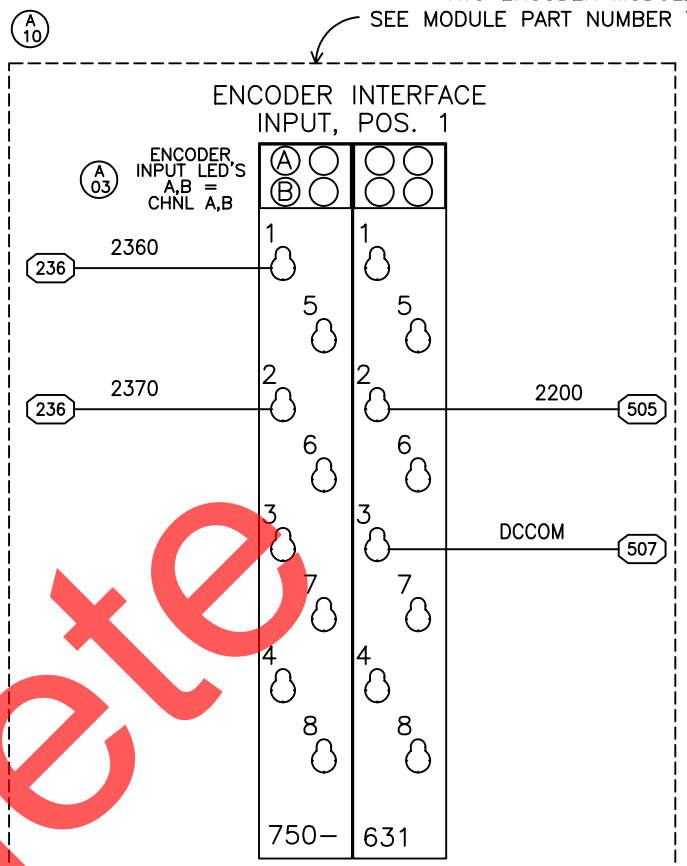
SPARE

2200 DCCOM 600 600

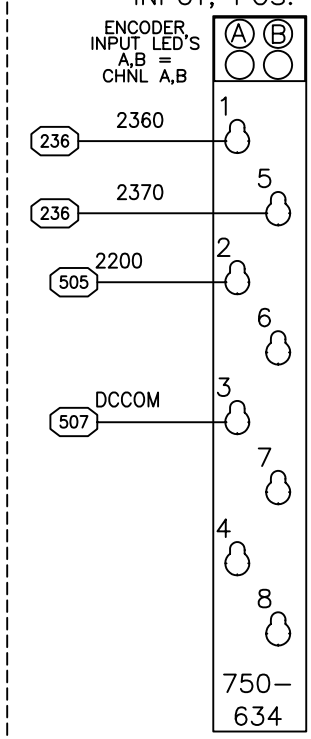
LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

522
523
524
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526
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528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543

ENCODER INTERFACE
INPUT, POS. 1



ENCODER INTERFACE
INPUT, POS. 1



MACHINE #1
ENCODER CHNL "A"

MACHINE #1
ENCODER CHNL "B"

| | | | | | |
|--------------------------------------------------------|--|---------------------------------------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | MACHINED SURFACES 125 AA | | DRAWN BY RF DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | CHECKED BY GS APPROVED BY GS | |
| IN-OUT POSITIONER | | THREAD LENGTH DIMS. ARE FULL THREAD | | REL NO PE601307 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | CONTROL NUMBER 1092924 | |
| SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | REV. A01 PAGE 5 / 6 | |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

1104882

TO DIGITAL AIRFLOW CONTROL MODULES (SEE SHEET 5)

DIGITAL FLOW, NET. PWR HARNESS 1042648 (ALWAYS PLUGS INTO LAST "HIGHEST NUMBERED" MODULE)

| CONDUIT WIRING TO RELAYS AND RESISTORS | | | | |
|----------------------------------------|----------------|--------------------|-------------------|---------------|
| CONNECTION OF: | CONNECTION TO: | | | |
| CONDUIT WIRE/COLOR | RESISTOR | RELAY-TERMINAL NO. | TERMINAL BLOCK | NOTES: |
| GRAY | | R1 - A2 | 240V (next to R1) | SEE NOTE 1 |
| GRAY | RES1 | R1 - A1 | 240V (next to R1) | SEE NOTE 1 |
| YELLOW | | R2 - 11 | | |
| YELLOW | | R2 - 12 | | |
| ORANGE | | R2 - 14 | | NO CONNECTION |
| ORANGE | | R3 - A2 | | |
| RED | RES2 | R3 - A1 | 240V (next to R3) | SEE NOTE 2 |
| RED | RES2 | | 240V (next to R3) | SEE NOTE 2 |
| GREEN/YEL | | | PE | |

NOTES:

1.) THIS GRAY WIRE AND 1 LEAD OF RES1 ARE BOTH TERMINATED AT THE "240V" TERMINAL ADJACENT TO R1.

2.) RED WIRE AND 1 LEAD OF RES2 ARE BOTH TERMINATED AT THE "240V" TERMINAL ADJACENT TO R3.

| | SW1 | | CONSOLE # |
|--------|-------|-------|-----------|
| | BIT 1 | BIT 0 | |
| MASTER | UP | UP | 1 |
| SLAVE | UP | DOWN | 2 |
| SLAVE | DOWN | UP | 3 |
| SLAVE | DOWN | DOWN | 4 |

DETAIL A

UP = END
DWN = CONTINUE

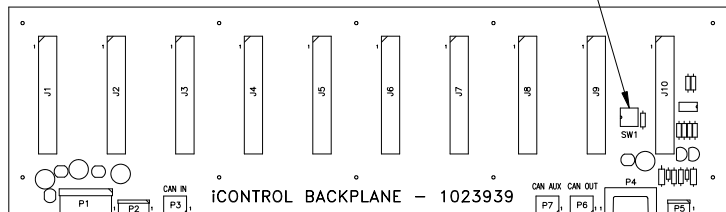
TO PANEL MOUNT PC CONTROL UNIT (SEE SHEET 4)

CONTROL UNIT POWER HARNESS 1103114

SIGNAL INTERFACE HARNESS 1042647

iCONTROL®

MAIN CABINET SUB-PANEL



FERRITE BEAD 185067A

400W POWER SUPPLY 1098442

TERMINAL BLOCK 1026102

SWITCH - 334806
CONTACT BLOCKS - 288806

CONDUIT/WIRE

DETAIL A

KEYLOCK SWITCH 1000594

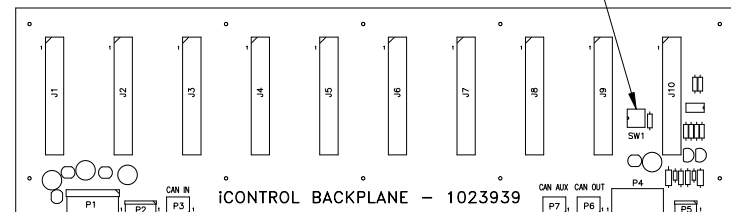
CONTACT BLOCK 1000595

FERRITE BEAD 185067A

iCONTROL®
FRONT PANEL

CUT BLUE & WHITE WIRES ON SLAVE UNITS ONLY

TO 24 CH DIGITAL INPUT MODULE (SEE SHEET 2)



iCONTROL®
SLAVE SUB-PANEL

DETAIL A

CRITICAL

No revisions permitted without approval of the proper agency

| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
|------------------------------------------|-----|-------------------------------------------------------------------|-----------------------|
| SIZE | D | DRAWN BY | DATE |
| 1/2 | 1/2 | 130CT10 | |
| 1/2 | 1/2 | CHECKED BY | APPROVED BY |
| 1/2 | 1/2 | SN | SN |
| 1/2 | 1/2 | REL NO | PE602229 |
| 1/2 | 1/2 | CONTROL NUMBER | 1104882 |
| 1/2 | 1/2 | SCALE | 1/2 |
| 1/2 | 1/2 | PRODUCT DEVELOPMENT DEPARTMENT | CAD GENERATED DRAWING |
| 1/2 | 1/2 | PAGE 1 / 5 | |

D

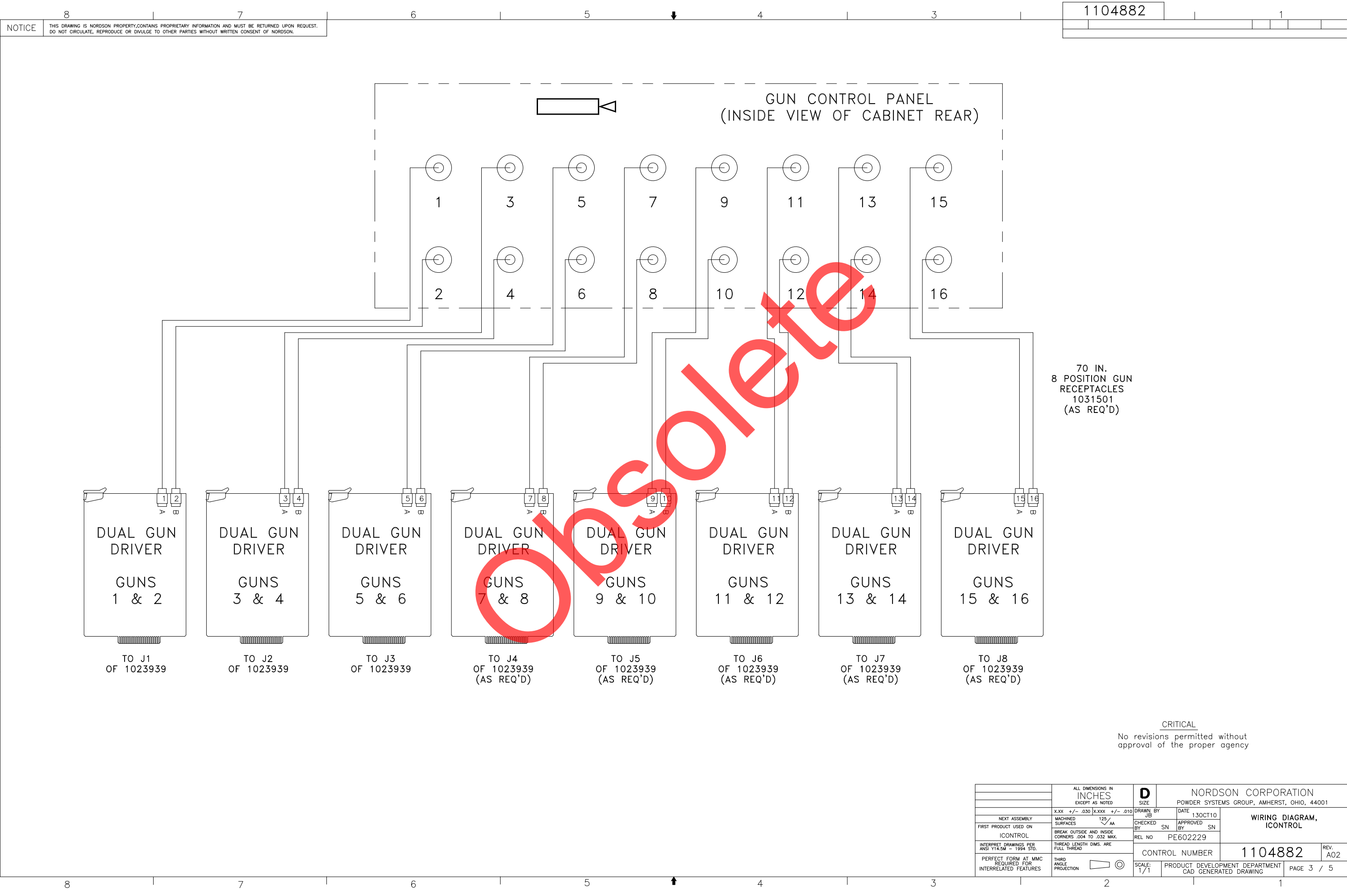
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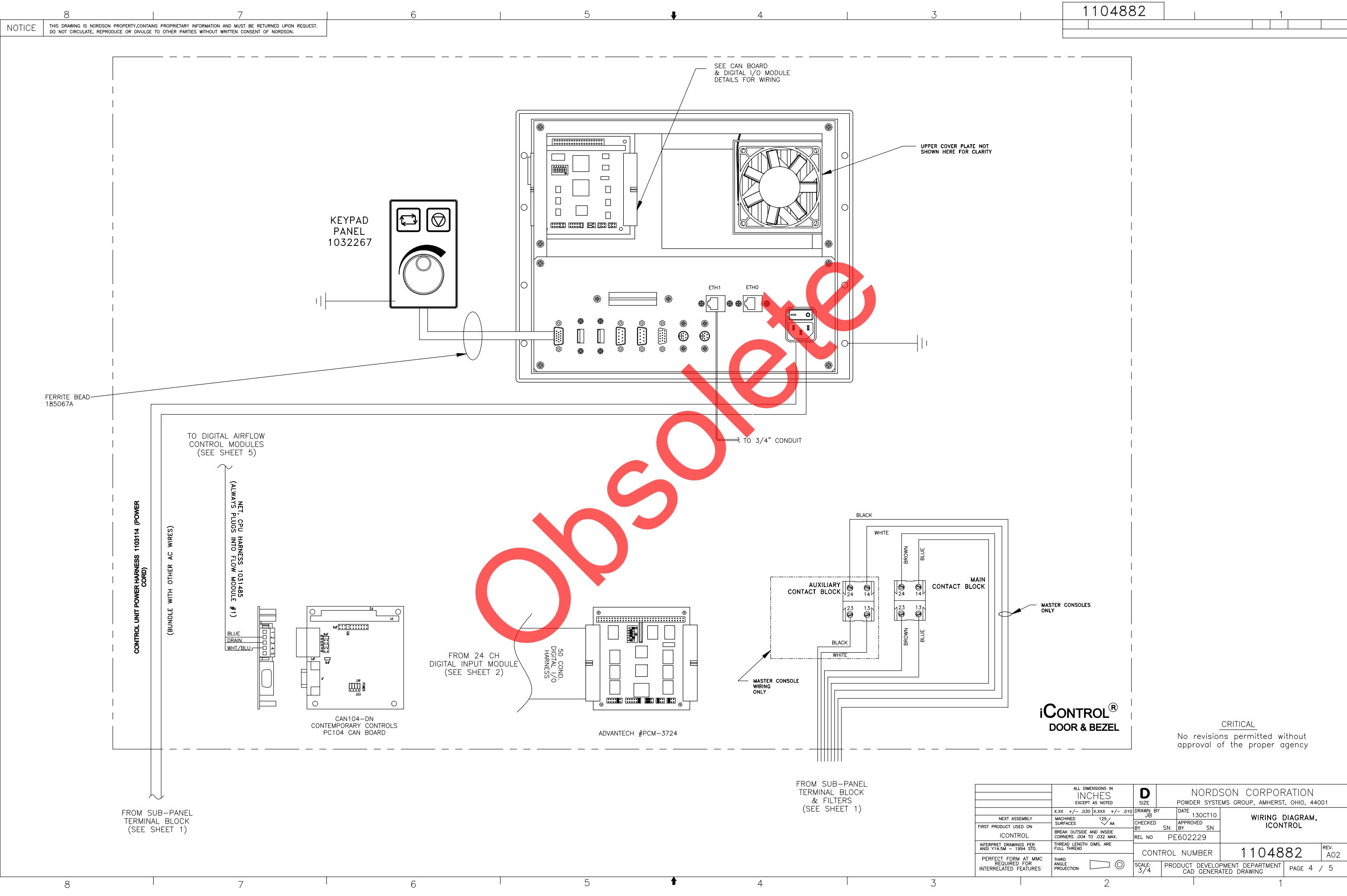
1

No revisions permitted without
approval of the proper agency

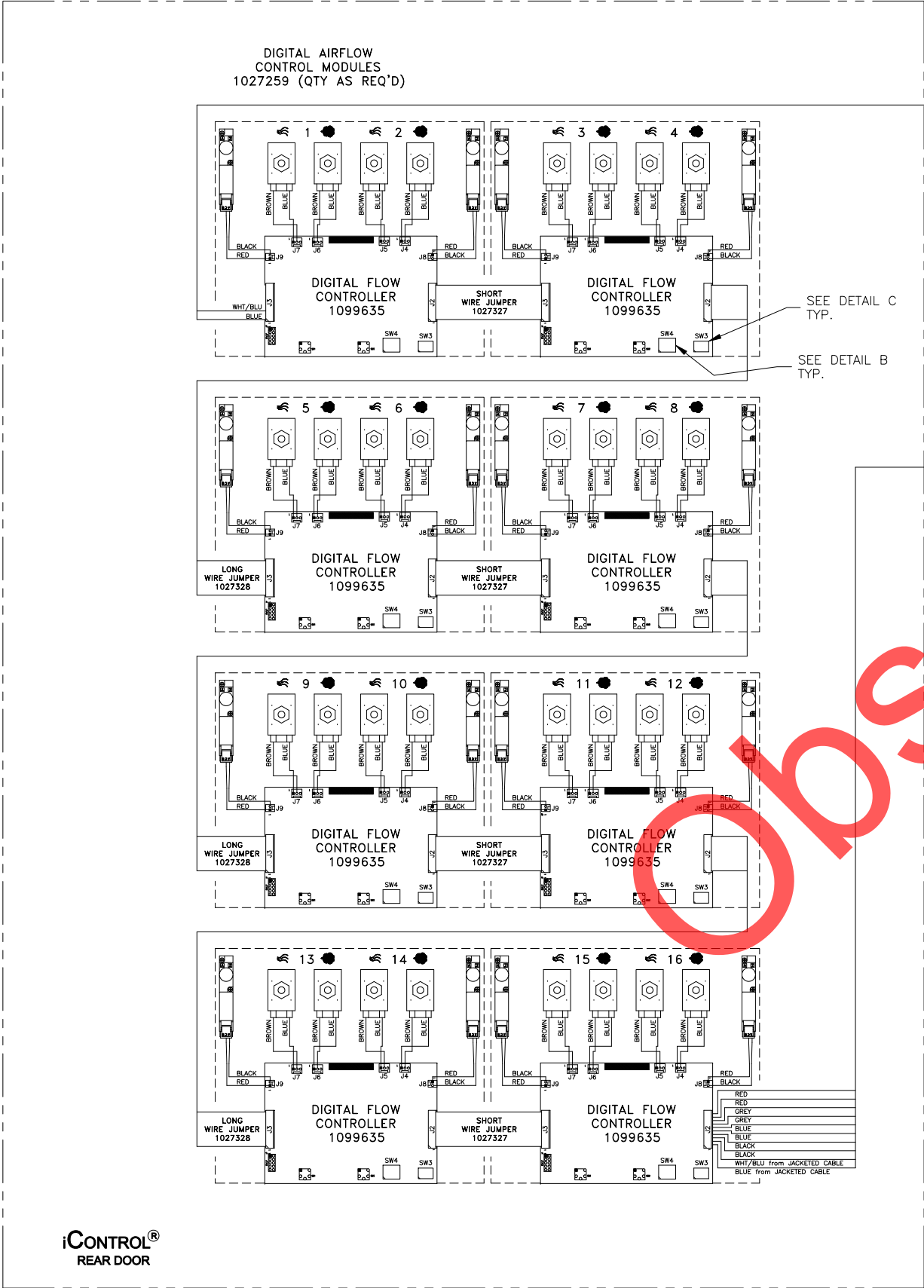
A

| | |
|--|-----|
| | A |
|--|-----|





| | | | | | | | |
|--------------------------------------------------------|--|----------------------------------------------------|--|----------------|--|------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D | | NORDSON CORPORATION | |
| | | X.XX +/- .030 X.XXX +/- .010 | | SIZE | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | MACHINED SURFACES 125 / AA | | DRAWN BY JB | | DATE 13OCT10 | |
| FIRST PRODUCT USED ON | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | CHECKED BY SN | | APPROVED BY SN | |
| ICONTROL | | THREAD LENGTH DIMS. ARE FULL THREAD | | REL NO | | PE602229 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | | | CONTROL NUMBER | | 1104882 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | SCALE: 3/4 | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | | | PAGE 4 / 5 | |



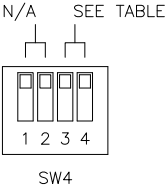
NET. CPU HARNESS 1031485 (ALWAYS PLUGS INTO FLOW MODULE #1)

FROM PC104 CAN BOARD (SEE SHEET 4)

DIGITAL FLOW NET. PWR HARNESS 1042648 (ALWAYS PLUGS INTO LAST "HIGHEST NUMBERED" MODULE)

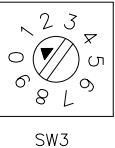
FROM SUB-PANEL TERMINAL BLOCK & BACKPLANE (SEE SHEET 1)

| SW4 | | | |
|--------|-------|-------|-----------|
| | BIT 3 | BIT 4 | CONSOLE # |
| MASTER | UP | UP | 1 |
| SLAVE | UP | DOWN | 2 |
| SLAVE | DOWN | UP | 3 |
| SLAVE | DOWN | DOWN | 4 |



DETAIL B

| SW3 | |
|-------------|------------------------------|
| GUN NUMBERS | SET FLOW MODULE SELECTOR TO: |
| 1-2 | 1 |
| 3-4 | 2 |
| 5-6 | 3 |
| 7-8 | 4 |
| 9-10 | 5 |
| 11-12 | 6 |
| 13-14 | 7 |
| 15-16 | 8 |

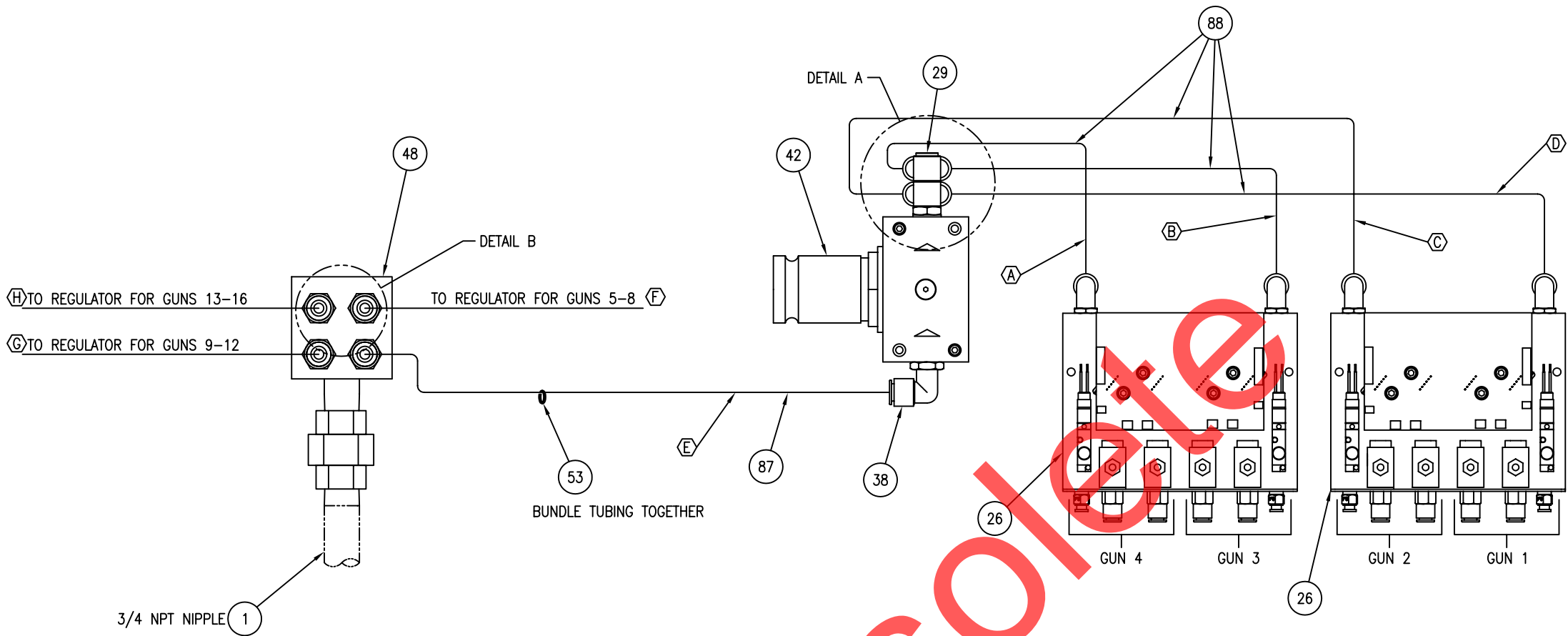


DETAIL C

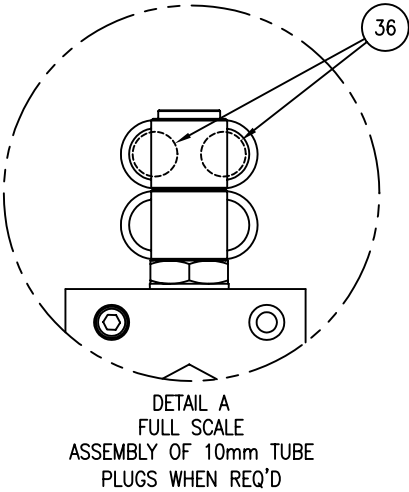
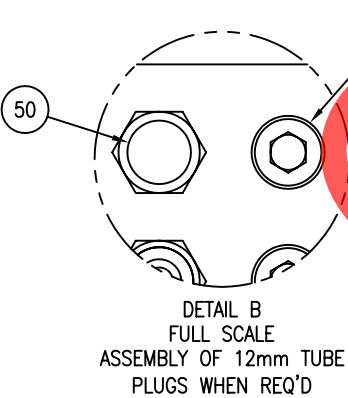
CRITICAL

No revisions permitted without approval of the proper agency

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|------------|----------|-------------------------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | DATE | 130CT10 | |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125/AA | CHECKED BY | SN | APPROVED BY | SN |
| ICONTROL | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE602229 | CONTROL NUMBER | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | SCALE: 1/2 | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 5 / 5 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | 1104882 | | REV. A02 | |



| CUT LENGTH ±.25 | |
|-----------------|-------|
| (A) | 13.00 |
| (B) | 15.00 |
| (C) | 17.00 |
| (D) | 21.00 |
| (E) | 39.50 |
| (F) | 34.00 |
| (G) | 29.00 |
| (H) | 24.00 |



- NOTES:
- COMPONENTS ARE DRAWN IN RELATIVE POSITION TO ACTUAL LOCATION IN ENCLOSURE.
 - CUT TUBES (ITEMS 87 & 88) TO LENGTHS INDICATED ON CHART & INSTALL. CUT LENGTHS A-D REPEAT FOR ALL 4 SHELVES AS NEEDED.
 - PLUGS (ITEMS 36 & 50) DEPICTED IN DETAILS A & B MAY BE REQ'D. SEE BOM FOR QUANTITY.
 - FOR DETAILS OF ITEM 48, SEE REF. DRAWING 1073367

| | | | | | |
|------------------------------------------------|--------------------------------------------------------|----------------|--------|-------------------------------------------------------------------|------------------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | C SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| XXXXXX | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | DJT | DATE | 02OCT02 |
| NEXT ASSEMBLY | MACHINED SURFACES 125 AA | CHECKED BY | XXX | APPROVED BY | XXX |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE0841 | | |
| ICONTROL | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1034090 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | SCALE: 1/2 | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | REV. A08 PAGE 1 / 1 |

| NOTICE | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|-------------------------------------------------|------|------------------|
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| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | NORDSON PART NO. |
| [ASSEMBLY BOM] | | | | | |
| 0 | X | | REF DWG ASSY, JUNCTION BOX, PHOTO-EYE, 30W | 1 | 1082005 |
| 1 | X | 832R8 | ENCLOSURE, CONT HING, 14X12X6, W/ KNOCKOUTS | 1 | 1081440 |
| 2 | X | A-14P12 | PANEL, 12.75 X 10.88, FOR 14X12 ENCLOSURE | 1 | 1057271 |
| 3 | X | 051450000 | TRACCY, DIN, RAIL, SLOT, 35X2M-L6 | .6M | 239214 |
| 4 | X | F1X3LG6 | WIREDUCT, 1 X 3, PVC, GRAY, SLOTTED | 1 | 1090158 |
| 5 | X | C1LG6 | COVER, 1 | 2 | 1046394 |
| 6 | X | | SCR, HEX, SELF TAP, 10-32X .500, Z | 12 | 981137 |
| 7 | X | | WASHER, LK, EXT, #10, STL, ZN | 6 | 983124 |
| 8 | X | 1492-J4 | TERMINAL BLOCK, GRAY, IEC, 22-10 AWG, J4 | 24 | 1075583 |
| 9 | X | 1492-JG4 | TERMINAL BLK, GND, GRN/ YEL, 30-12 AWG, JG4 | 3 | 1075665 |
| 10 | X | 1492-EBJ3 | BARRIER, TCACCY, END, DIN, GRAY, J SERIES | 1 | 1075584 |
| 11 | X | 1492-EAJ35 | ANCHOR, END | 2 | 306318 |
| 12 | X | SPD24301 | POWER SUPPLY, DIN RAIL, MT, 30W, 24-28VDC | 1 | 1080749 |
| 13 | X | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4" X 1-1/4 FUSES | 1 | 341366 |
| 14 | X | 1492-N37 | END, PLATE, AB FUSE | 1 | 341367 |
| 15 | X | MDL-1-R | FUSE, 2AMP, SLOBO, 250V, 3AG, 313 | 1 | 939132 |
| 16 | X | | LABEL SET, BASE, PHOTOEYE, JUNCTION BOX | 1 | 1082023 |
| 17 | X | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | 1078531 |
| 18 | X | 8002-150 | TAG, WARNING, ELEC, SHOCK HAZARD, 1.00X.88 | 1 | 1075682 |
| 19 | X | | LABEL SET, PANEL, WIRING FOR 1035897 | 1 | 1083081 |
| 20 | X | | WIRE, VINYL, 18AWG, RED | 1 | 931170 |
| 21 | X | | WIRE, VINYL, 18AWG, WHITE | 1 | 939888 |
| 22 | X | | WIRE, 105C, 18GA, BLUE, 600V | 2.5 | 335174 |
| 23 | X | | WIRE, VINYL, 14AWG, GREEN W/ YELLOW | 4 | 931191 |
| 24 | X | | STRAP, CABLE, .875 DIA | 2 | 939110 |
| 25 | X | | MOUNT, CABLE STRAP | 1 | 242837 |
| 26 | X | | NUT, HEX, MACH, #10-32, BRASS | 2 | 984129 |
| 27 | X | | WASHER, LK, E, SPT, #10, STL, NI | 1 | 983120 |
| 28 | X | | WASHER, FLT, E, .203X.406X.040, BR | 1 | 983021 |
| 29 | X | | LABEL, IDENTIFICATION, 1.00 X 2.00 | 1 | 1005678 |
| 30 | X | | TERMINAL RING TONGS, INS, 16-14, 10 | 1 | 933054 |
| 31 | X | | BOX, CST-1 / HEATER, HM | 1 | 603124 |
| 32 | X | | LABEL, BLANK, 3.00X5.00 | 1 | 603348 |
| 33 | X | | BOX, 19 3/8X17 3/8 X 8 3/4 | 1 | 603054 |
| 34 | X | | PREFIX RESERVED | 1 | 000000 |
| [OPTIONAL ZONE PHOTO-EYE BOM] | | | | | |
| 36 | X | 1492-J4 | TERMINAL BLOCK, GRAY, IEC, 22-10 AWG, J4 | 8 | 1075583 |
| 37 | X | 1492-JG4 | TERMINAL BLK, GND, GRN/ YEL, 30-12 AWG, JG4 | 4 | 1075665 |
| 38 | X | 1492-EBJ3 | BARRIER, TCACCY, END, DIN, GRAY, J SERIES | 1 | 1075584 |
| 39 | X | 1492-EAJ35 | ANCHOR, END | 2 | 306318 |
| 40 | X | | LABEL SET, PHOTOEYE, ZONE | 1 | 1082273 |
| 41 | X | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | 1078531 |
| 42 | X | | WIRE, 105C, 18GA, BLUE, 600V | 2 | 335174 |
| 43 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | A/R | 972808 |
| 44 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | A/R | 939122 |
| 45 | X | | NUT, LOCK, 1/2 CONDUIT | A/R | 984526 |
| [OPTIONAL PART ID PHOTO-EYE BOM] | | | | | |
| 46 | X | 1492-J4 | TERMINAL BLOCK, GRAY, IEC, 22-10 AWG, J4 | 8 | 1075583 |
| 48 | X | 1492-JG4 | TERMINAL BLK, GND, GRN/ YEL, 30-12 AWG, JG4 | 4 | 1075665 |
| 49 | X | 1492-EBJ3 | BARRIER, TCACCY, END, DIN, GRAY, J SERIES | 1 | 1075584 |
| 50 | X | 1492-EAJ35 | ANCHOR, END | 2 | 306318 |
| 51 | X | | LABEL SET, PHOTOEYE, PART ID | 1 | 1082270 |
| 52 | X | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | 1078531 |
| 53 | X | | WIRE, 105C, 18GA, BLUE, 600V | 1.5 | 335174 |
| 54 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | A/R | 972808 |
| 55 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | A/R | 939122 |
| 56 | X | | NUT, LOCK, 1/2 CONDUIT | A/R | 984526 |
| [OPTIONAL SCANNER 1 BOM] | | | | | |
| 58 | X | 60316 | CONTROLLER, MINI-ARRAY, DISCRETE | A/R | 321159 |
| 59 | X | 60317 | CONTROLLER, MINI-ARRAY, ANALOG | A/R | 321158 |
| 60 | X | | LABEL SET, PHOTOEYE, SCANNER 1 | 1 | 1082271 |
| 61 | X | | WIRE, 105C, 18GA, BLUE, 600V | A/R | 335174 |
| 62 | X | | WIRE, VINYL, 14AWG, GREEN W/ YELLOW | 1 | 931191 |
| 63 | X | | STRAP, CABLE, .875 DIA | 1 | 939110 |
| 64 | X | | PREFIX RESERVED | 1 | 000000 |
| 65 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | 2 | 972808 |
| 66 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | 2 | 939122 |
| 67 | X | | NUT, LOCK, 1/2 CONDUIT | 2 | 984526 |
| 68 | X | QDC-515C | CABLE, SCANNER, 15FT | A/R | 321155 |
| 69 | X | QDC-525C | CABLE, SCANNER, 25FT | A/R | 321156 |
| 70 | X | QDC-550C | CABLE, SCANNER, 50FT | A/R | 321157 |
| 71 | X | | PREFIX RESERVED | 1 | 000000 |
| [OPTIONAL SCANNER 2 BOM] | | | | | |
| 72 | X | 60316 | CONTROLLER, MINI-ARRAY, DISCRETE | A/R | 321159 |
| 73 | X | 60317 | CONTROLLER, MINI-ARRAY, ANALOG | A/R | 321158 |
| 74 | X | | LABEL SET, PHOTOEYE, SCANNER 2 | 1 | 1082272 |
| 75 | X | | WIRE, 105C, 18GA, BLUE, 600V | A/R | 335174 |
| 76 | X | | WIRE, VINYL, 14AWG, GREEN W/ YELLOW | 1 | 931191 |
| 77 | X | | PREFIX RESERVED | 1 | 000000 |
| 78 | X | | CONNECTOR, STRAIN RELIEF, 1/2NPT | 2 | 972808 |
| 79 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | 2 | 939122 |
| 80 | X | | NUT, LOCK, 1/2 CONDUIT | 2 | 984526 |
| 81 | X | QDC-515C | CABLE, SCANNER, 15FT | A/R | 321155 |
| 82 | X | QDC-525C | CABLE, SCANNER, 25FT | A/R | 321156 |
| 83 | X | QDC-550C | CABLE, SCANNER, 50FT | A/R | 321157 |
| 84 | X | | PREFIX RESERVED | 1 | 000000 |
| [OPTIONAL ENCODER TIMER BOM] | | | | | |
| 86 | X | KSD3330A | MODULE, TIMER, RECYCLING | 1 | 1082239 |
| 88 | X | P1023-20 | ADAPTER, DIN RAIL, TIMER | 1 | 1082238 |
| 89 | X | | WIRE, 105C, 18GA, BLUE, 600V | 3 | 335174 |
| 90 | X | | TERMINAL, PUSH ON, INS, 250, 22-18, 12245-2 | 3 | 933162 |
| 91 | X | | PREFIX RESERVED | 1 | 000000A |
| [OPTIONAL CONNECTORS BOM] (FOR CONN OPTION, SEE SHEET 4) | | | | | |
| 93 | X | MIN-5MR-3 | RECEPTACLE, 5 PIN, MALE, 18 AWG, 36 IN LEADS | 1 | 1087623 |
| 94 | X | | SEAL, CONDUIT FITTING, 1/2, BLUE | 2 | 939122 |
| 95 | X | | NUT, LOCK, 1/2 CONDUIT | 2 | 984526 |
| 96 | X | | STRAP, CABLE, .875 DIA | 6 | 939110 |
| 97 | X | FT-221-1/8 BLACK | TUBING, HEAT-SHRINK, .125 | 3 IN | 931315 |
| 98 | X | SB-875-11 | BUSHING, SNAP, 11/16 ID | 1 | 900718 |
| 99 | X | 09 30 024 0301 | CONN, HOUSING, HAN, RECT, SHELL-ONLY | 1 | 1055320 |
| 100 | X | | SPACER, CONNECTOR, 24 POSITION | 1 | 1091712 |
| 101 | X | 09 30 000 9994 | GASKET, CONNECTOR, 24 POSITION | 1 | 1091714 |
| 102 | X | | SCR, PAN, SLT, M4X25, ZN | 4 | 982097 |
| 103 | X | | WASHER, FLT, .203X.309X.04, NYLON | 4 | 983038 |
| 104 | X | | WASHER, LK, M, EXT, M4, STL, ZN | 4 | 983421 |
| 105 | X | | NUT, HEX, M4, STL, ZN | 4 | 984715 |
| 106 | X | 09 33 024 2701 | INSERT, CONN, FEMALE, HARTING, 09330242701 | 1 | 1091711 |
| 107 | X | 6309 | JKTD, CABL, 25-CONN, SHIELD, 24AWG | 1 FT | 1033952 |
| 108 | X | | WIRE, VINYL, 14AWG, GREEN W/ YELLOW | 1 FT | 931191 |
| 109 | X | | LABEL SET, CONN OPTION, FOR 1035897 | 1 | 1091716 |
| 110 | X | 1R5000A20F020 | RECEPTACLE, CORD, 5 PIN, MINI, 16 GA, 300V, FEM | 1 | 1071818 |
| 111 | X | | | | |

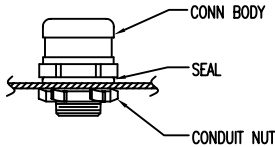
INSTALL OPTIONAL CORD CONNECTORS FOR PART ID PHOTO-EYES (AS REQUIRED) AS SHOWN. SEE CORD CONNECTOR DETAIL.

OPTIONAL PART ID PHOTO-EYES APPLY LABELS AS INDICATED.

USE THESE LOCATIONS FOR OPTIONAL SCANNER 2 CABLE ACCESS. LABEL EACH CORD GRIP PAIR AS SCNR2.

TERMINAL BLOCK LAYOUT

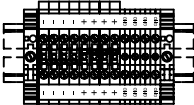
| |
|-------|
| L2 |
| PE |
| - |
| - |
| + |
| + |
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 5 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |
| GND |
| GND |
| ALG-D |
| ALG-U |



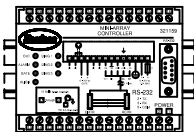
CORD CONNECTOR DETAIL

SCANNER DETAILS

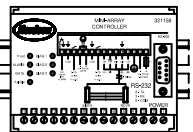
OPTIONAL PHOTOEYES POWER DISTRIBUTION.



OPTIONAL "DISCRETE" OUTPUT SCANNER, CONTROLLER



OPTIONAL "ANALOG" OUTPUT SCANNER, CONTROLLER



OPTIONAL PART ID PHOTO-EYES APPLY LABELS AS INDICATED.

INSTALL OPTIONAL CORD CONNECTORS FOR ZONE PHOTO-EYES (AS REQUIRED) AS SHOWN. SEE CORD CONNECTOR DETAIL.

USE THESE LOCATIONS FOR OPTIONAL SCANNER 1 CABLE ACCESS. LABEL EACH CORD GRIP PAIR AS SCNR1.

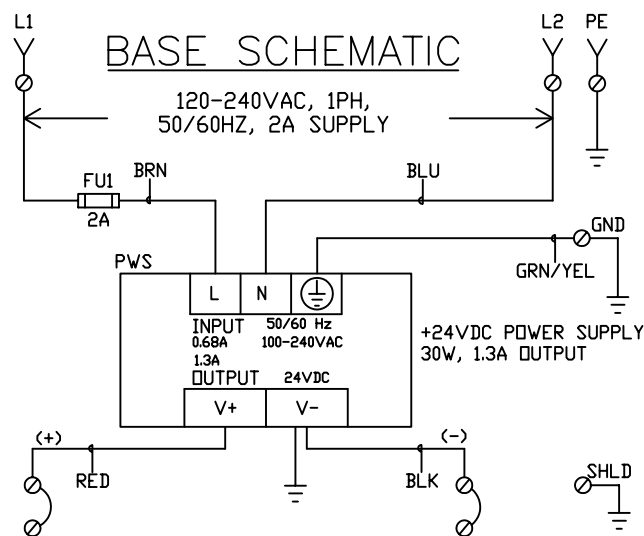
* - QUANTITIES DETERMINED BY ORDER REQUIREMENTS. A/R = AS REQUIRED

| | | | | | |
|--------------------------------------------------------|--|--------------------------------|--|--------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION | |
| NEXT ASSEMBLY | | DRAWN BY DRJ | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| FIRST PRODUCT USED ON | | CHECKED BY RF | | DATE 29OCT02 | |
| ICONTROL | | REL NO PE0851 | | APPROVED BY BL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | REF DWG, JUNCTION BOX, PHOTOEYE, 30W | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | CONTROL NUMBER | | 1035897 | |
| SCALE: 1:2 | | PRODUCT DEVELOPMENT DEPARTMENT | | REV. B12 | |
| | | CAD GENERATED DRAWING | | PAGE 1 / 4 | |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

NOTES:

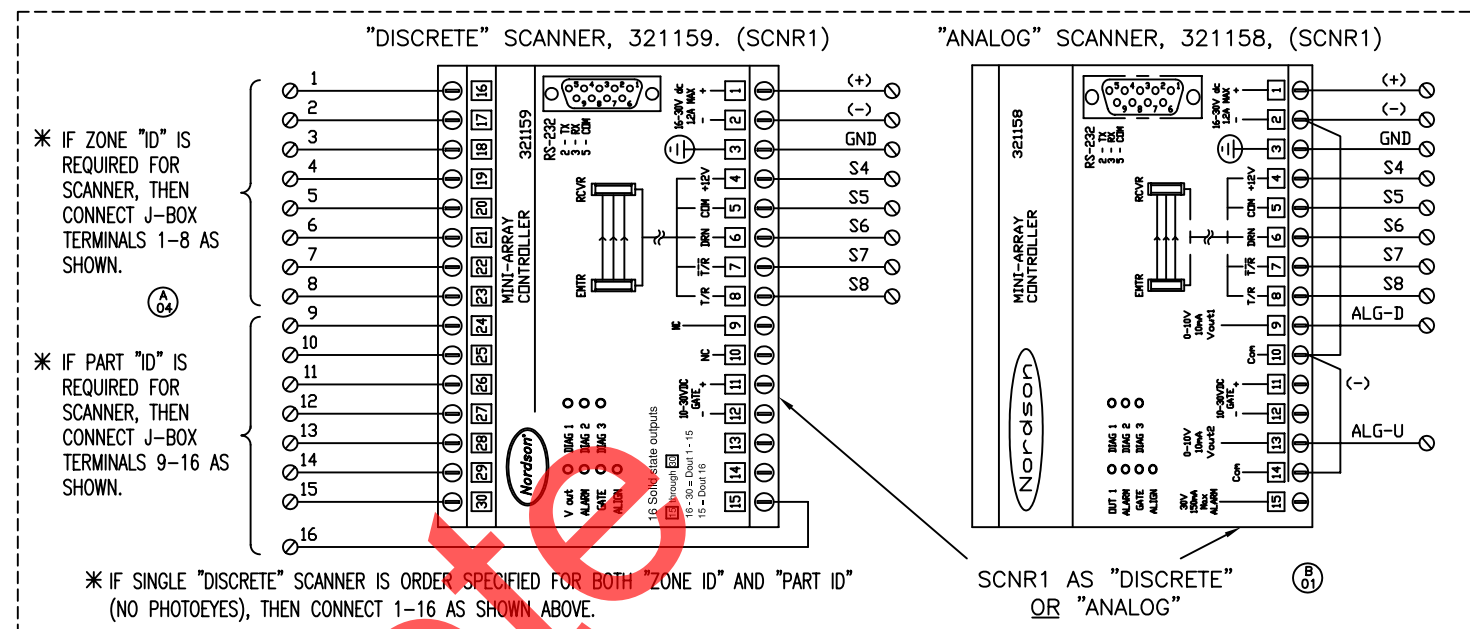
1. TO BE PACKAGED IN CARTON WITH ADEQUATE PROTECTION AND LABELED WITH NORDSON PART NUMBER AND CURRENT REVISION. AFFIX NORDSON TRADEMARK LABELS (ITEM 120) POSITIONED TO COVER ANY EXISTING VENDOR MARKINGS ON CARTON.
2. ITEMS SUPPLIED BY NORDSON.
- INSTALL AND WIRE OPTIONAL BANNER SCANNER(S) AS INDICATED, AND AS SPECIFIED PER ORDER. IF DUAL SCANNERS, THEN LABEL EACH SCANNER AS INDICATED.
 - ITEM 131 OR 132 PROVIDED, NOT BOTH. SEE DRAWING SHEET 2 FOR WIRING DETAIL.
 - IF SINGLE SCANNER, THEN CABLES TO BE WIRED THROUGH CORD GRIP CONNECTORS TO TERMINALS S4, S5, S6, S7, & S8.
 - IF DUAL SCANNERS, THEN CABLES TO BE WIRED THROUGH LABELED CORD GRIP CONNECTORS TO SCANNER TERMINALS 4, 5, 6, 7, & 8. LABEL AS INDICATED ON SHEET 1.
3. WIRE DEVICES AS INDICATED IN BASE SCHEMATIC.
4. LOCATE AND LABEL OPTIONAL PHOTOEYE AND/OR OPTIONAL SCANNER CORD GRIP CONNECTORS AS INDICATED ON DRAWING SHEET 1.
5. SCANNER #1 CAN BE EITHER AN "ANALOG" OR "DISCRETE" TYPE CONTROLLER, AS SPECIFIED PER ORDER. IF "ANALOG" IS REQUIRED, THEN THERE WILL BE NO "ZONE ID" DEVICE OR WIRING.
6. IF DUAL SCANNERS, ONE AS "ZONE ID" (OR "ANALOG") AND ONE AS "PART ID", THEN SCANNER #2 IS ALWAYS THE "PART ID" SCANNER.
7. IF DUAL SCANNERS, BOTH AS "ZONE ID", THEN SCANNER #1 IS FOR UPPER ZONES AND SCANNER #2 IS FOR LOWER ZONES.
- WIRING FROM EACH SCANNER TO PANEL TERMINALS BASED ON ORDER SPECIFICATION. EACH SCANNERS WIRING NOT TO OVERLAP AT PANEL TERMINALS BUT ALWAYS SEQUENCED AS SCANNER #1 OUTPUTS FIRST, FOLLOWED BY SCANNER #2 OUTPUTS.
 - TERMINAL WIRING FORMULA:
SCANNER #1 TERMINALS 16 TO $[(16 + "n") - 1]$, CONNECTED TO PANEL TERMINALS 1 TO "n",
WHERE "n" = NUMBER OF SPECIFIED ZONES FOR UPPER SCANNER.
SCANNER #2 TERMINALS 16 TO $[(16 + "nn") - 1]$, CONNECTED TO PANEL TERMINALS ("n" + 1) TO ("n" + "nn"),
WHERE "nn" = NUMBER OF SPECIFIED ZONES FOR LOWER SCANNER.
 - FOR EXAMPLE:
FOR UPPER SCANNER (SCNR1) ORDER SPECIFIED AS 4 ZONES, THEN WIRE SCANNER #1 TERMINALS 16, 17, 18, & 19 TO PANEL TERMINALS 1, 2, 3, & 4.
FOR LOWER SCANNER (SCNR2) ORDER SPECIFIED AS 3 ZONES, THEN WIRE SCANNER #2 TERMINALS 16, 17, & 18 TO PANEL TERMINALS 5, 6, & 7.
8. SCANNER PROGRAMMING:
- IF ONE "DISCRETE" SCANNER IS SPECIFIED FOR "ZONE ID" ONLY, THEN DOWNLOAD APPLICABLE PROGRAM TO SCANNER.
 - IF ONE "DISCRETE" SCANNER IS SPECIFIED FOR "PART ID" ONLY, THEN DOWNLOAD THE 6" X 3/4 RES. X 8 ZONE PROGRAM (FILE NAME "06-4-id8.PSF") FOR A 6" SCANNER. IF OTHER THAN 6" LENGTH, THEN GET CUSTOM PROGRAM FROM NORDSON ENGINEERING.
 - IF ONE "DISCRETE" SCANNER FOR BOTH "ZONE ID" AND "PART ID", THEN CUSTOM PROGRAMMING REQUIRED BY NORDSON ENGINEERING.
 - IF DUAL "DISCRETE" "ZONE ID" SCANNERS, ONE FOR UPPER "ZONE ID" AND ONE FOR LOWER "ZONE ID", THEN OUTPUT WIRING PER NOTE 6, AND DOWNLOAD APPLICABLE (LENGTH / RESOLUTION / # OF ZONES) PROGRAM TO EACH CONTROLLER.
 - IF ONE "ANALOG" SCANNER IS SPECIFIED, THEN DOWNLOAD THE ANALOG CONTROLLER PROGRAM (FILE NAME: ALG-2OUT.PSF). THIS PROGRAM APPLIES TO ALL LENGTHS OF SCANNER.
9. TIMER MODULE IS "NEGATIVE SWITCHING" TYPE AND MUST ONLY BE CONNECTED TO A "SINKING" ENCODER INPUT.
10. IMPRINT LABEL WITH THE FOLLOWING INFORMATION AND AFFIX TO THE OUTSIDE OF THE FRONT DOOR (TEXT TO BE .25 HIGH MIN.). FOR CUSTOMIZED VERSIONS OF THIS BOX, ADD SUFFIX "-MOD" TO THE PART NUMBER:
NORDSON CORPORATION
iCONTROL PART I.D
120V/1PH/60HZ/.6A
PN 1035897



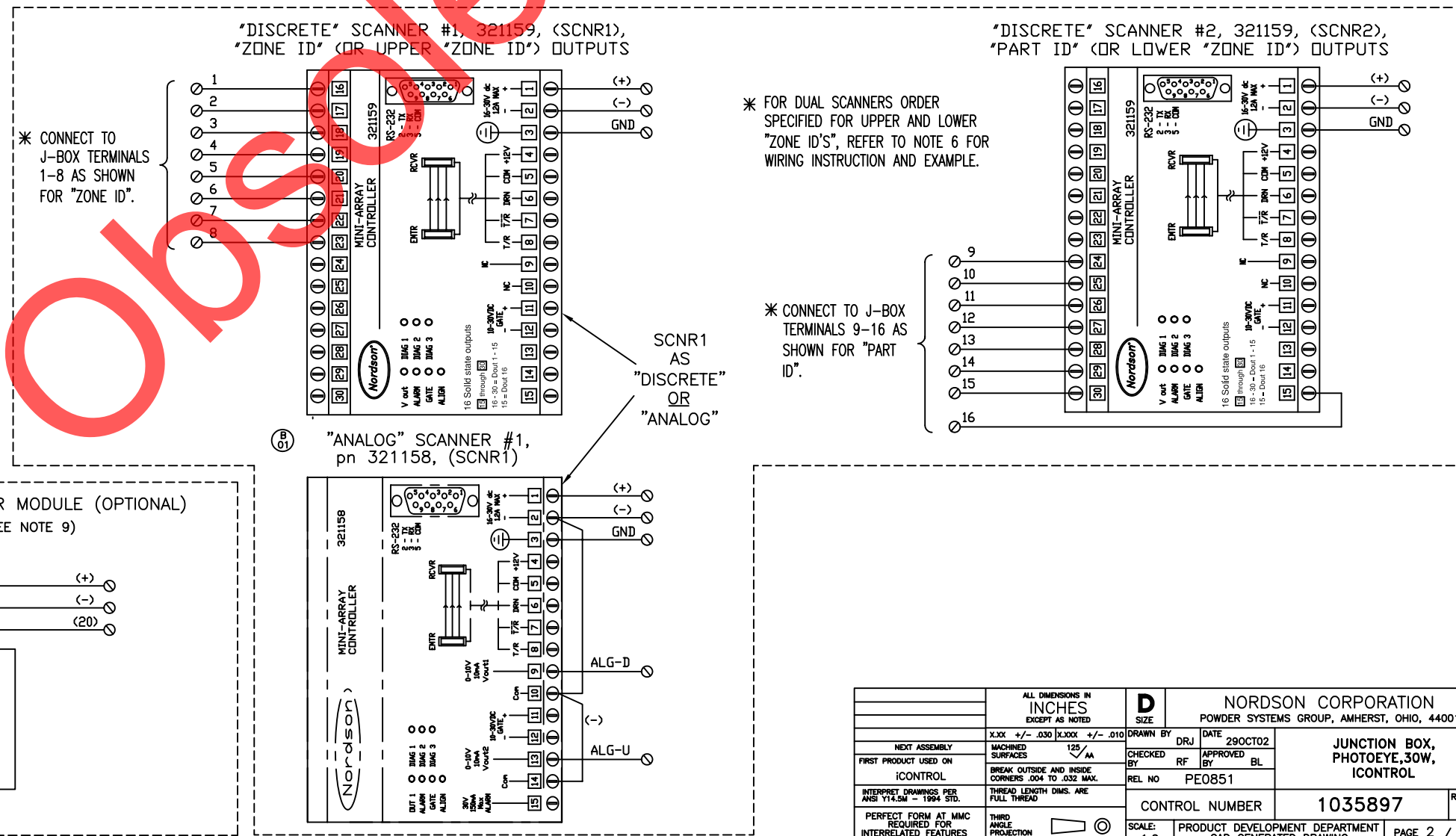
USE GRAY INSULATED WIRE (18 AWG MIN.) FOR ALL DC WIRING OTHER THAN POWER.

PEJB INTERNAL WIRING AND INSTRUCTION

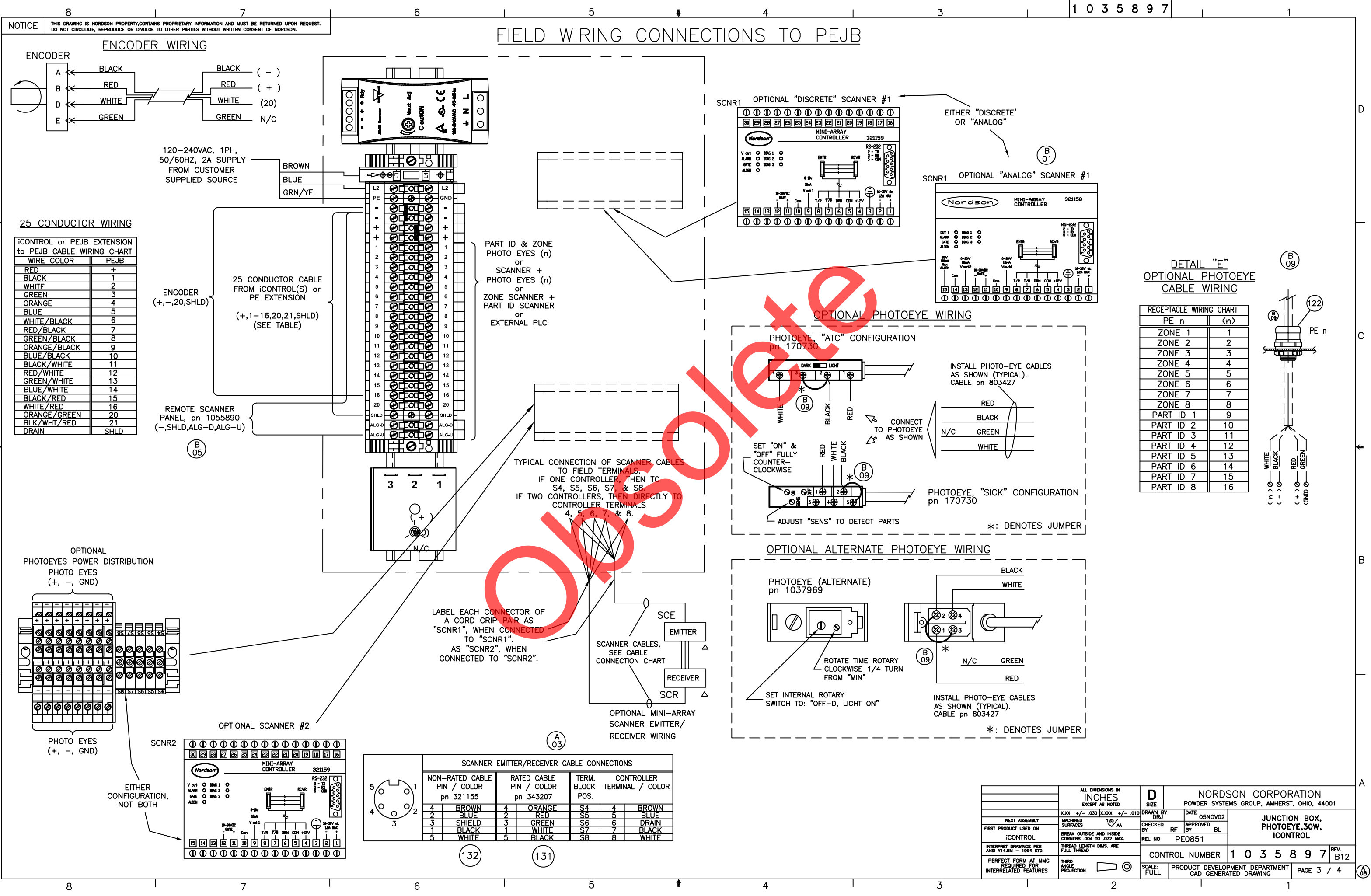
SINGLE SCANNER OPTIONS



DUAL SCANNER OPTIONS

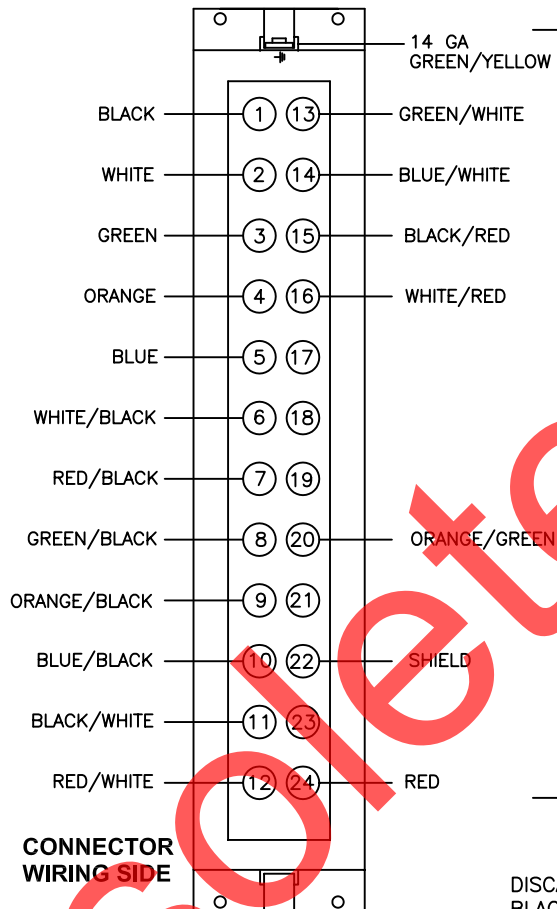
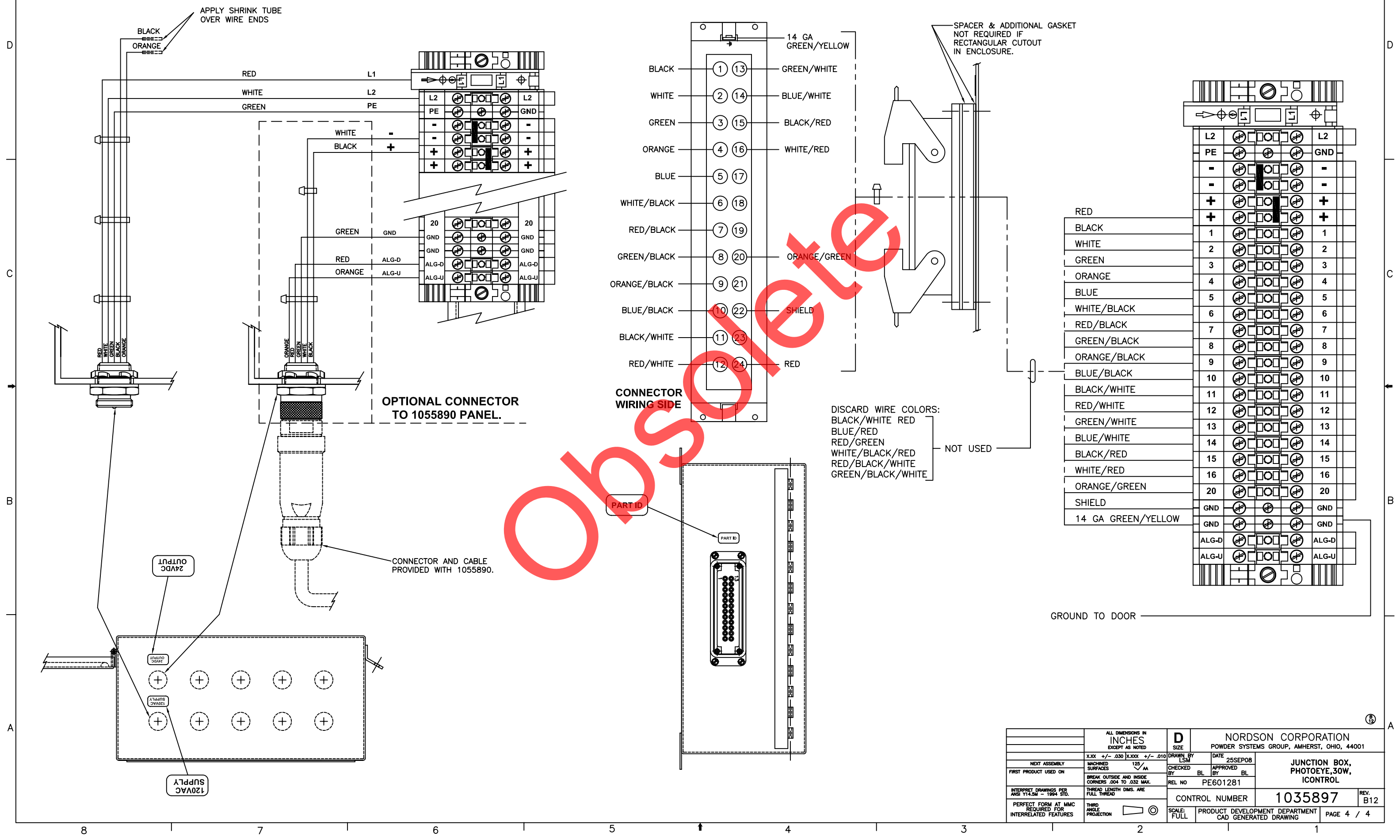


| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | NORDSON CORPORATION | |
|--------------------------------------------------------|--|--------------------------------------------|----------------|
| SIZE | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY DRJ | DATE 29OCT02 |
| MACHINED SURFACES | | CHECKED BY RF | APPROVED BY BL |
| FIRST PRODUCT USED ON | | REL NO PE0851 | |
| iCONTROL | | CONTROL NUMBER | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | 1035897 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | REV. B12 | |
| THIRD ANGLE PROJECTION | | SCALE: 1:2 | |
| | | PRODUCT DEVELOPMENT DEPARTMENT | |
| | | CAD GENERATED DRAWING | |
| | | PAGE 2 / 4 | |



CONNECTORS OPTION

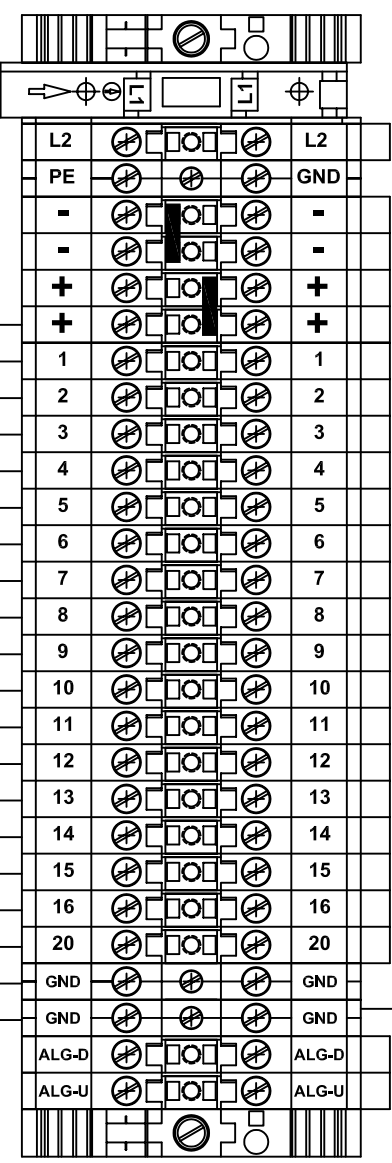
NOTICE THIS DRAWING IS NORDSON PROPERTY. CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.



DISCARD WIRE COLORS:
BLACK/WHITE RED
BLUE/RED
RED/GREEN
WHITE/BLACK/RED
RED/BLACK/WHITE
GREEN/BLACK/WHITE

NOT USED

- RED
- BLACK
- WHITE
- GREEN
- ORANGE
- BLUE
- WHITE/BLACK
- RED/BLACK
- GREEN/BLACK
- ORANGE/BLACK
- BLUE/BLACK
- BLACK/WHITE
- RED/WHITE
- GREEN/WHITE
- BLUE/WHITE
- BLACK/RED
- WHITE/RED
- ORANGE/GREEN
- SHIELD
- 14 GA GREEN/YELLOW



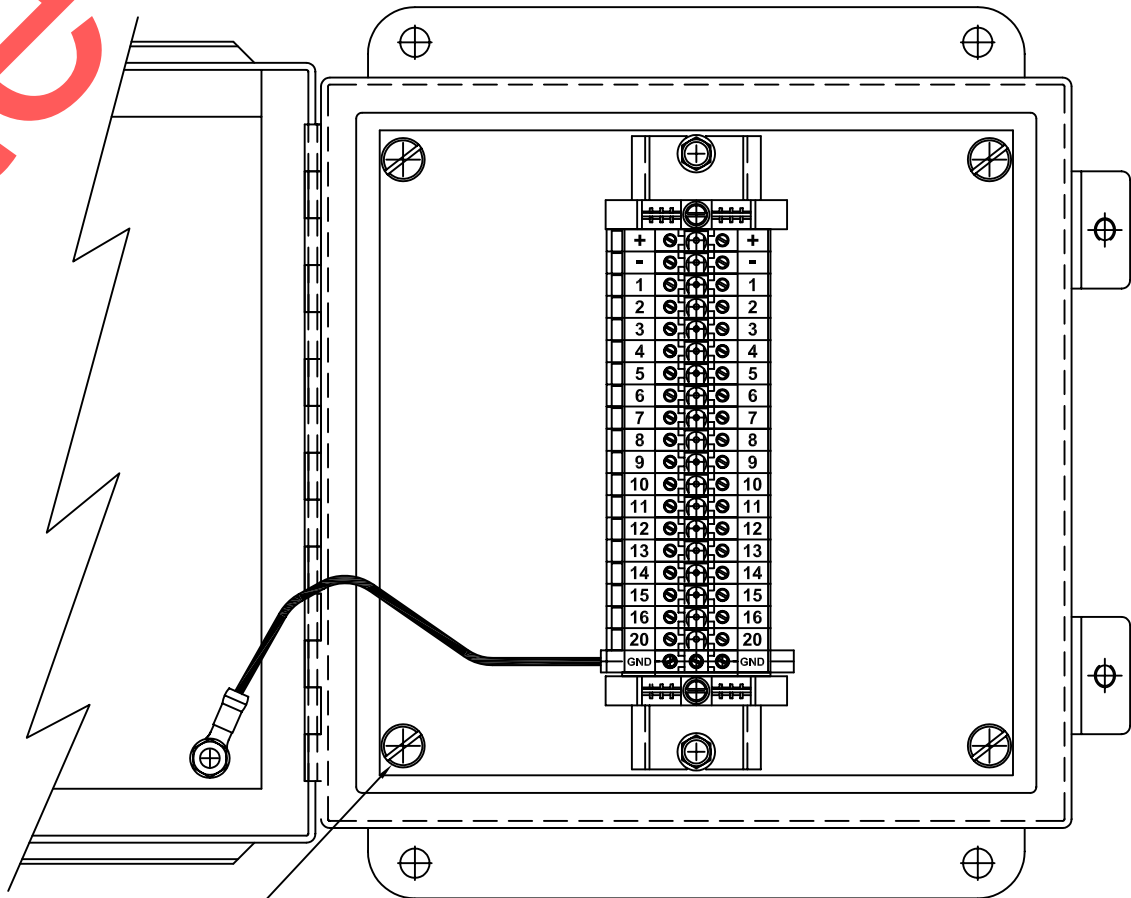
GROUND TO DOOR

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|----------------|----------|-------------------------------------------------------------------|----------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 [X.XXX +/- .010] | DRAWN BY | LSM | DATE | 25SEP08 |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125 AA | CHECKED BY | BL | APPROVED BY | BL |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE601281 | | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1035897 | REV. B12 |
| THIRD ANGLE PROJECTION | | SCALE: FULL | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 4 / 4 | |

| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|--------------|--------------------------------------------|-------|-------------------------|------------------|
| 0 | | | REF DWG,ASSY,EXT J-BOX,iCONTROL | 1 | | 1075835 |
| 1 | | A-808CH | ENCLOSURE, CONT HINGE,8x8x4 | 1 | HOFFMAN OR EQUIV. | 1056323 |
| 2 | | A8P8 | PANEL,6.75 X 6.88,FOR 8X8 ENCLOSURE | 1 | HOFFMAN ENGINEERING CO. | 1056324 |
| 3 | | 0514500000 | TBACCY,DIN,RAIL,SLOT,35x2M-LG | .17 M | WEIDMULLER | 239214 |
| 4 | | 1492-EAJ35 | ANCHOR,END | 2 | ALLEN BRADLEY | 306318 |
| 5 | | 1492-J4 | TERMINAL BLK,GRAY,IEC,30-12 AWG,J4 | 19 | ALLEN BRADLEY | 1075583 |
| 6 | | 1492-JG4 | TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 7 | | | SCR,HEX,SELF TAP,10-32X .500,Z | 2 | | 981137 |
| 8 | | | WASHER,LK,E,INT,#10,STL,ZN | 2 | | 983124 |
| 9 | | | LABEL,EXT J-BOX,iCONTROL | 1 | | 1075855 |
| 10 | | | LABEL,TERMINAL BLOCK,FOR 1035899 | 2 | | 1076700 |
| 11 | | | NUT,HEX,MACH,#10-32,BRASS | 2 | | 984129 |
| 12 | | | WASHER,FLT,E,.203X.406X.040,BR | 1 | | 983021 |
| 13 | | | WASHER,LK,E,SPT,#10,STL,NI | 1 | | 983120 |
| 14 | | | TERMINAL,RINGTONG,INS,16-14,10 | 1 | | 933054 |
| 15 | | | WIRE,VINYL,14AWG,GREEN W/YELLOW | 1 | | 931191 |
| 16 | | | LABEL,BLANK,3.500X5.00 | 1 | | 603348 |
| 17 | | | CARTON,MISC PARTS | 1 | | 602117 |

25 CONDUCTOR WIRING

| iCONTROL or PEJB EXTENSION to PEJB CABLE WIRING CHART | |
|----------------------------------------------------------|------|
| WIRE COLOR | PEJB |
| RED | + |
| BLACK | 1 |
| WHITE | 2 |
| GREEN | 3 |
| ORANGE | 4 |
| BLUE | 5 |
| WHITE/BLACK | 6 |
| RED/BLACK | 7 |
| GREEN/BLACK | 8 |
| ORANGE/BLACK | 9 |
| BLUE/BLACK | 10 |
| BLACK/WHITE | 11 |
| RED/WHITE | 12 |
| GREEN/WHITE | 13 |
| BLUE/WHITE | 14 |
| BLACK/RED | 15 |
| WHITE/RED | 16 |
| ORANGE/GREEN | 20 |
| | |
| DRAIN | GND |

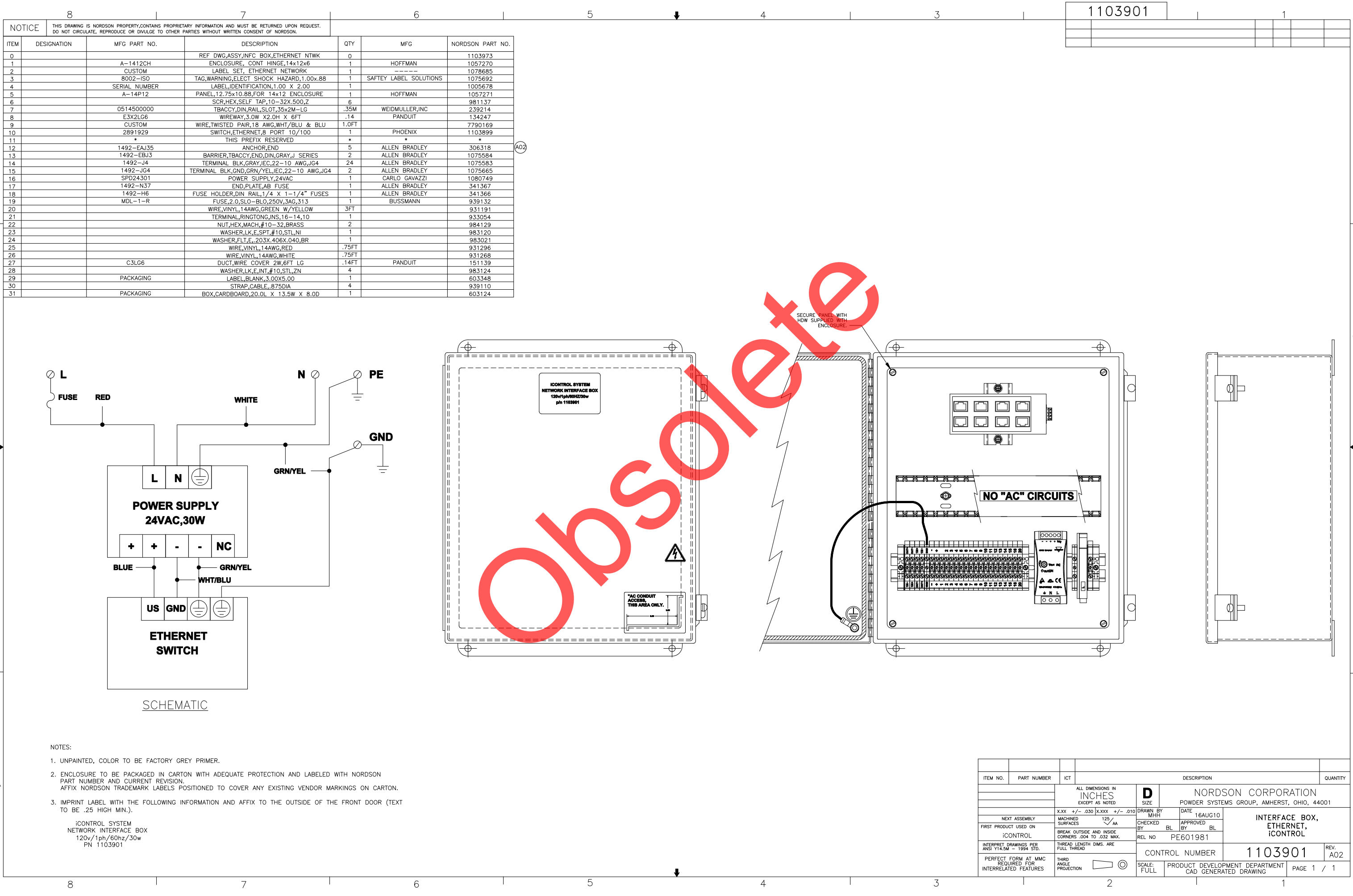


NOTES:

- TO BE PACKAGED WITH ADEQUATE PROTECTION AND LABELED WITH NORDSON PART NUMBER AND CURRENT REVISION.
- AS AN ALTERNATE, PROVIDE A LABEL WITH THE FOLLOWING INFORMATION AND AFFIX TO THE OUTSIDE OF THE FRONT DOOR.

NORDSON CORPORATION
iCONTROL PART I.D.
P/N: 1035899

| | | | | | | | |
|--------------------------------------------------------------|--|-------------------------------------------------------|--|---------------------------|--|-------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY DRJ | | DATE 29OCT02 | |
| FIRST PRODUCT USED ON | | MACHINED SURFACES 125 AA | | CHECKED BY RF | | APPROVED BY BL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO PE0851 | | JUNCTION BOX, PE EXTENSION, iCONTROL | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THREAD LENGTH DIMS. ARE FULL THREAD | | THIRD ANGLE PROJECTION | | CONTROL NUMBER 1035899 | |
| | | | | | | REV. A05 | |
| | | | | SCALE: FULL | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | | | PAGE 1 / 1 | |



| NOTICE THIS DRAWING IS NORDSON PROPERTY,CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON. | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------|--------------------------------------------|-------|--------------------|
| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | NORDSON PART NO. |
| 0 | | | REF DWG ASSY,SCANNER J-BOX,GUN POSITIONER | 1 | 1081427 |
| 1 | | 832RB | ENCLOSURE, CONT HINGE,14x12x6, w/KNOCKOUTS | 1 | 1081440 |
| 2 | | | LABEL SET, SCANNER,GUN PSNR | 1 | 1081458 |
| 3 | | 8002-ISO | TAG,WARNING,ELECT SHOCK HAZARD,1.00x.88 | 1 | 1075692 |
| 4 | | | LABEL,IDENTIFICATION,1.00 X 2.00 | 1 | 1005678 |
| 5 | | A14P12 | PANEL,12.75 X 10.88,FOR 14X12 ENCLOSURE | 1 | 1057271 |
| 6 | | 0514500000 | TBACCY,DIN,RAIL,SLOT,35x2M-LG | .50M | WEIDMULLER,INC |
| 7 | | | SCR,HEX,SELF TAP,10-32X.500,Z | 6 | 981137 |
| 8 | | | WASHER,LK,E,INT,#10, STL,ZN | 4 | 983124 |
| 9 | | | WIRE,VINYL,14AWG,GREEN W/YELLOW | 4.5 | 931191 |
| 10 | | F1X3LG6 | WIREDUCT, 1 X 3,PVC,GRAY,SLOTTED | 1FT | PANDUIT |
| 11 | | C1LG6 | COVER 1 | 1 | 1046394 |
| 12 | | | PREFIX RESERVED | 1 | 000000 |
| 13 | | 60317 | CONTROLLER,ANALOG,MINI-ARRAY | 2 | BANNER ENGINEERING |
| 14 | | 1492-EAJ35 | ANCHOR,END | 3 | ALLEN BRADLEY |
| 15 | | 1492-J4 | TERMINAL BLK,GRAY,IEC,22-10 AWG,JG4 | 7 | ALLEN BRADLEY |
| 16 | | | MODULE GROUP,I/O,WAGO | 1 | WAGO |
| 17 | | 1492-JG4 | TERMINAL BLK,GND,GRN/YEL,IEC,22-10 AWG,JG4 | 2 | ALLEN BRADLEY |
| 18 | | 1492-EBJ3 | BARRIER,TBACCY,END,DIN,GRAY,J-SERIES | 1 | ALLEN BRADLEY |
| 19 | | 1492-CULJ6-10 | JUMPER,TERM BLOCK,10 POLE,CTR PLUG IN | 1 | ALLEN BRADLEY |
| 20 | | | TERMINAL,RINGTONG,INS,16-14,10 | 1 | 933054 |
| 21 | | | NUT,HEX,MACH,#10-32,BRASS | 2 | 984129 |
| 22 | | | WASHER,FLT,E,SPT,#10,STL,NI | 1 | 983120 |
| 23 | | | WASHER,FLT,E,.208 X.406 X.040,BR | 1 | 983021 |
| 24 | | | CONNECTOR,STRAIN RELIEF,1/2 NPT | 4 | 972808 |
| 25 | | | SEAL,CONDUIT FITTING,1/2,BLUE | 4 | 939122 |
| 26 | | | NUT,LOCK,1/2 CONDUIT | 4 | 984526 |
| 27 | | QDC-515C | CABLE,SCANNER,15 FT | A/R | BANNER ENG CORP |
| 28 | | QDC-525C | CABLE,SCANNER,25 FT | A/R | BANNER ENG CORP |
| 29 | | QDC-550C | CABLE,SCANNER,50 FT | A/R | BANNER ENG CORP |
| 30 | | | LABEL SET,PANEL WIRING FOR 1055890 | 1 | 1083082 |
| 31 | | | WIRE,10SC,18GA,BLUE,600V | 10 | 335174 |
| 32 | | | STRAP,CABLE,.875 DIA | 1 | 939110 |
| 33 | | | MOUNT,CABLE STRAP | 1 | 242837 |
| 34 | | UTPCH2 | CABLE,RJ45 TO RJ45,2FT | 1 | PANDUIT |
| 35 | | MX5-F02 | CONNECTOR,ETHERNET,RJ45-TO-IDC,CAT5 | 1 | SIEMON |
| 36 | | MX-SM1-02 | BOX,SURFACE MOUNT,ETHERNET | 1 | SIEMON |
| 37 | | | BOX,CARDBOARD,20.0 L X 13.5 W X 8.0 D | 1 | 603124 |
| 38 | | | LABEL,BLANK | 1 | 603348 |
| 39 | | | PREFIX RESERVED | 1 | 000000 |
| 40 | (OPTIONAL 2nd BOOTH ETHERNET SWITCH BOM) | | | | |
| 41 | | 8918-13 | WIRE,10SC,18GA,BLUE,600V | 1.0FT | BELDEN |
| 42 | | 2891929 | SWITCH,ETHERNET,8 PORT,10/100 | 1 | PHOENIX |
| 43 | | UTPCH2 | CABLE,RJ45 TO RJ45,2FT | 1 | PANDUIT |
| 44 | | MX5-F02 | CONNECTOR,ETHERNET,RJ45-TO-IDC,CAT5 | 1 | SIEMON |
| 45 | | MX-SM1-02 | BOX,SURFACE MOUNT,ETHERNET | 1 | SIEMON |
| 46 | | 8916-189 | WIRE,VINYL,14AWG,GREEN W/YELLOW | 6.5FT | BELDEN |
| 47 | | PLT1M | CABLETIE,3.9 IN,185F/85C,NYLON,NATURAL | 1 | PANDUIT |

△-WHEN CONNECTOR OPTION IS USED, THIS ITEM IS CONNECTED TO ETHERNET CONNECTOR, ITEM 60.

★-THESE ITEMS SHIP LOOSE WITHIN THE PANEL.

★ITEM 16 I/O MODULE GROUP COMPONENT BREAKDOWN.

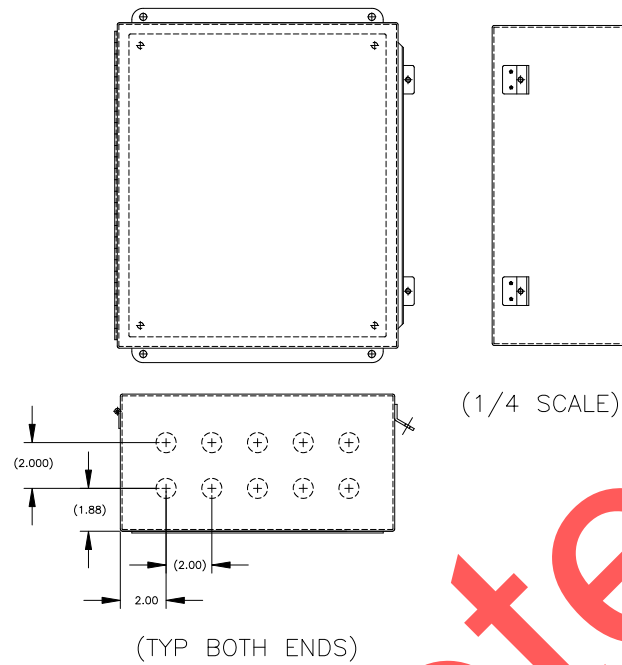
| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|------------------------------------|-----|------|
| 750-342 | COUPLER,FIELDBUS,ETHERNET TCP/IP | 1 | WAGO |
| 750-468 | MODULE,ANALOG INPUT,0-10,4 CHANNEL | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |

ICONTROL GMVR
SCANNER J-BOX
24VDC
p/n 1055890

DOOR LABEL

ICONTROL GMVR
SCANNER J-BOX
24VDC
p/n 1055890

HAZARD TAG



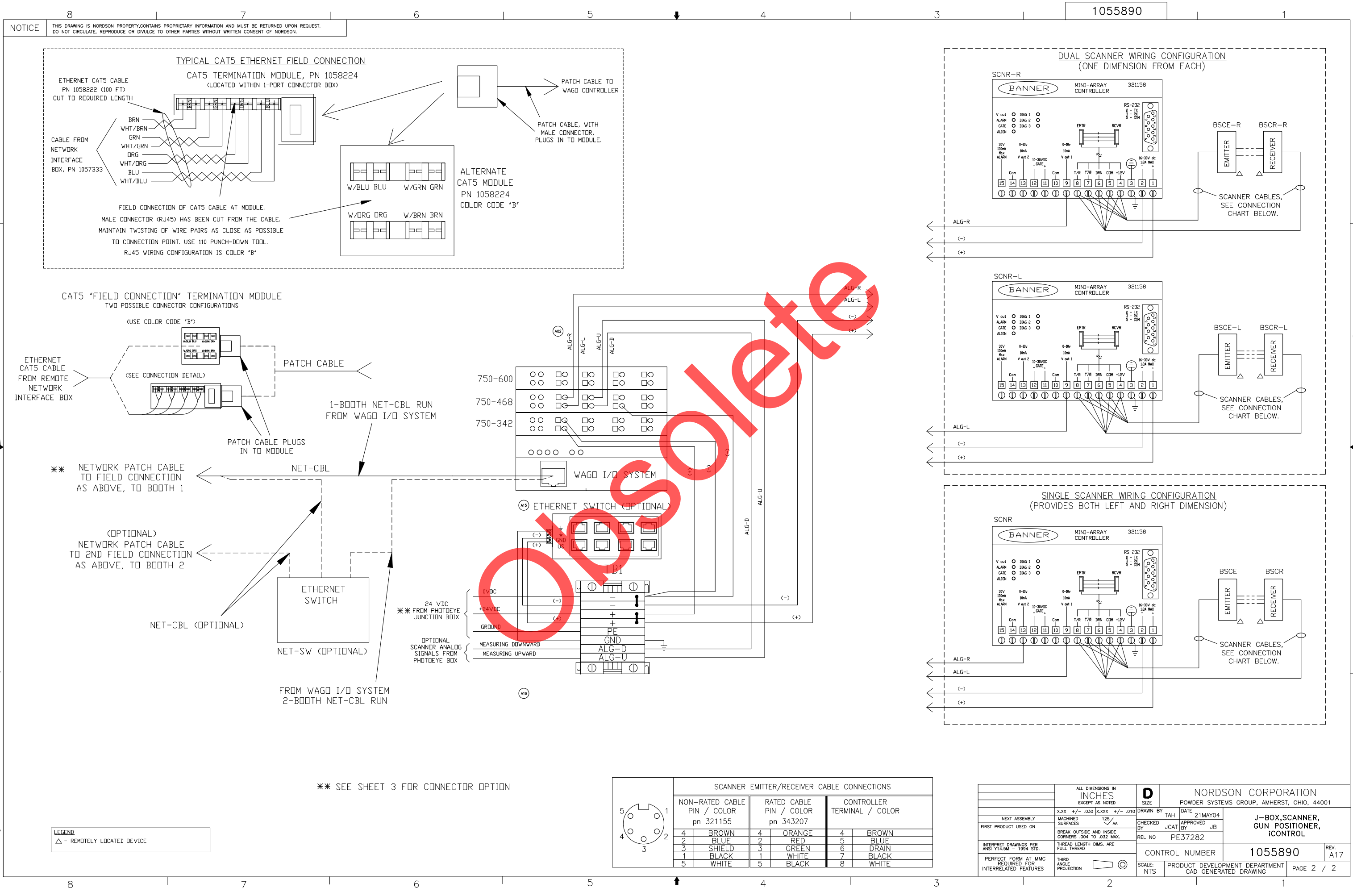
TERMINAL BLOCK
LAYOUT

| |
|----------|
| - |
| - |
| + |
| + |
| PE / GND |
| GND |
| ALG-D |
| ALG-U |

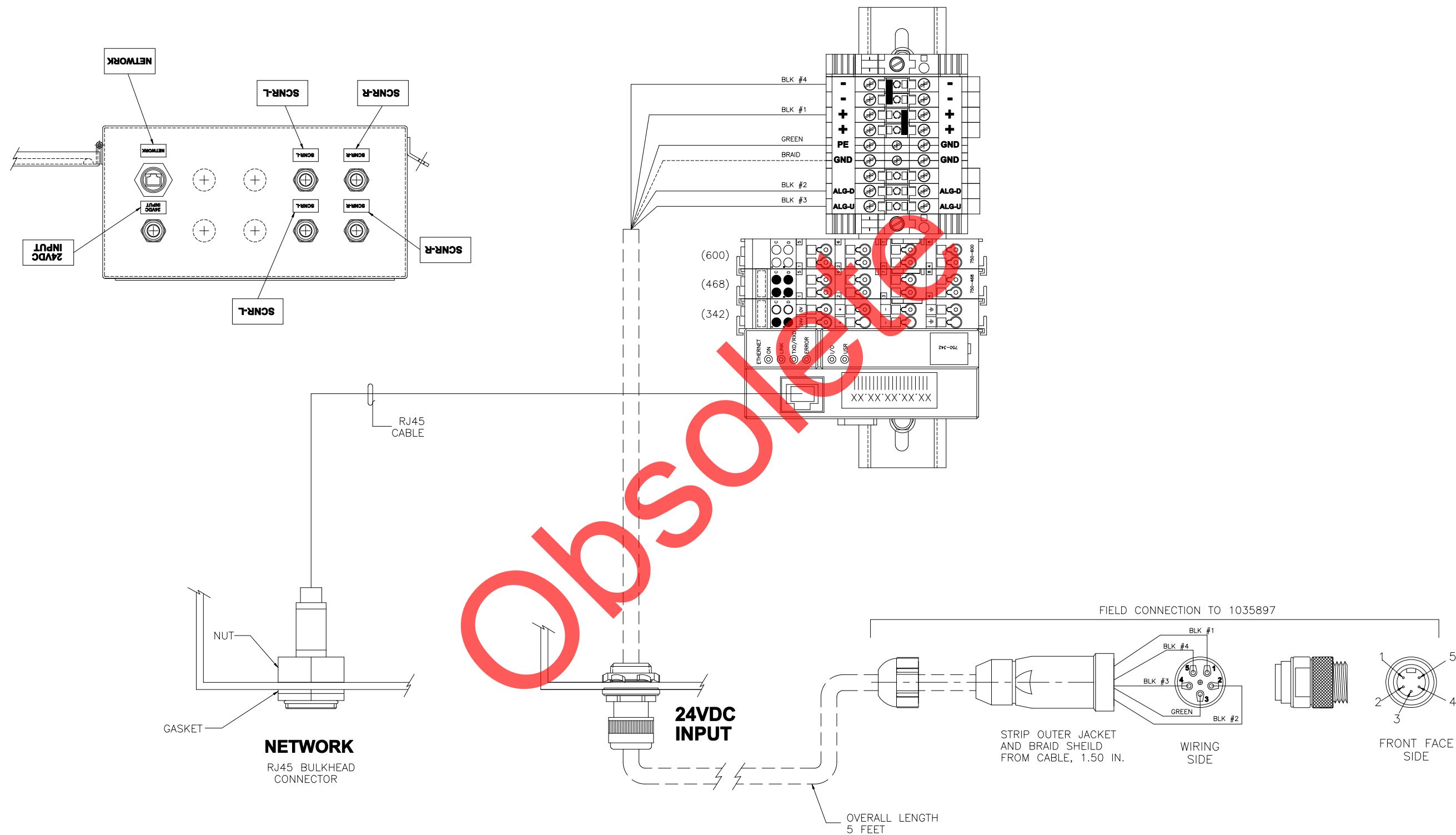
MODULE GROUP
LAYOUT

| |
|---------|
| 750-600 |
| 750-468 |
| 750-342 |

| | | | | |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------|-----------------------------------------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY TAH | DATE 21MAY04 | J-BOX,SCANNER, GUN POSITIONER, iCONTROL |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125/AA | CHECKED BY JCAT | APPROVED BY JB | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. THREAD LENGTH DIMS. ARE FULL THREAD | REL NO PE37282 | CONTROL NUMBER 1055890 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE 1/2 | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | REV. A17 PAGE 1 / 3 |



CONNECTORS OPTION



| | | | | |
|--------------------------------------------------------|--|----------------|------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D | NORDSON CORPORATION | |
| X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| MACHINED SURFACES 125 / AA | | DATE | 12APR07 | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | CHECKED BY | BL | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | APPROVED BY | BL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | REL NO | SC300714 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | CONTROL NUMBER | 1055890 | |
| THIRD ANGLE PROJECTION | | SCALE: FULL | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | PAGE 3 / 3 | |

LABEL IDENTIFICATION, 1.00 X 2.00

NOTICE

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| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|---------------------|-------------------------------------------------|------|------------------------|------------------|
| 0 | | | REF DWG, ASSY PANEL, GUN POSITIONER | 0 | | 1078407 |
| 1 | | A-1614CH | ENCLOSURE, CONT HINGE, 16x14x6 | 1 | HOFFMAN | 1078420 |
| 2 | | CUSTOM | LABEL SET, GUN POSITIONER | 1 | ----- | 1078684 |
| 3 | | 8002-ISO | TAG, WARNING, ELECT SHOCK HAZARD, 1.00x.88 | 1 | SAFETY LABEL SOLUTIONS | 1075692 |
| 4 | | | LABEL IDENTIFICATION, 1.00 X 2.00 | 1 | | 1005678 |
| 5 | | 0514500000 | TBACCY, DIN RAIL, SLOT, 35x2M-LG | .49M | WEIDMULLER, INC | 239214 |
| 6 | | | SCR, HEX, SELF TAP, 10-32X .500, Z | 6 | | 981137 |
| 7 | | A-16P14 | ENCLACCY, PANEL, 14.75x12.88, 14GA | 1 | HOFFMAN | 1078422 |
| 8 | | F1x3LG6 | WIREDUCT, 1 X 3, PVC, GRAY, SLOTTED | 1FT | PANDUIT | 1090158 |
| 9 | GROUND | PK7GTA | GROUND TERMINAL | 1 | SQUARE D | 1046405 |
| 10 | SC210 | KBMG-212D WITH 8833 | CONTROLLER, DC DRIVE W/ SP BD, GUN PSNR | 1 | KB ELECTRONICS | 1046921 |
| 11 | | | SCR, HEX, SELF TAP, SLTD, 8-32X.50, TYPE T,Z | 4 | | 1083981 |
| 12 | CB207 | 1DU10 | CIRCUIT BREAKER, 1 POLE, 10 AMP, 10-20 xl n | 1 | ALTECH | 1078518 |
| 13 | CB210 | 1CU4 | CIRCUIT BREAKER, 1 POLE, 4 AMP, 5-10 xl n | 1 | ALTECH | 1078516 |
| 14 | PWS219 | SPD24301 | POWER SUPPLY, DIN RAIL, MT. 30W, 24-28VDC | 1 | CARLO GAVAZZI | 1080749 |
| 15 | | | MODULE GROUP, I/O, WAGO | 1 | WAGO | 1078669 |
| 16 | | C1LG6 | COVER, 1 | 1FT | PANDUIT | 1046394 |
| 17 | FU217 | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4 X 1-1/4" FUSES | 1 | ALLEN BRADLEY | 341366 |
| 18 | FU217 | MDL-1-R | FUSE, 2AMP, SLOBL0, 250V, 3AG, 313 | 1 | BUSSMANN | 939016 |
| 19 | FU217 | 1492-N37 | END, PLATE, AB FUSE | 1 | ALLEN BRADLEY | 341367 |
| 20 | | 1492-J4 | TERMINAL BLK, GRAY, IEC, 22-10 AWG, JG4 | 30 | ALLEN BRADLEY | 1075583 |
| 21 | | 1492-EAJ35 | ANCHOR, END | 2 | ALLEN BRADLEY | 306318 |
| 22 | CR242 | CR242 | RELAY, TERM BLK, SPD, 110/125V AC/DC | 1 | ALLEN BRADLEY | 1071600 |
| 23 | | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, IEC, 22-10 AWG, JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 24 | | 1492-J4-Y | TERMINAL BLK, YELLOW, IEC, 22-10 AWG, JG4 | 2 | ALLEN BRADLEY | 1075694 |
| 25 | | 1492-EBJ3 | BARRIER, TBACCY, END, DIN, GRAY, J SERIES | 2 | ALLEN BRADLEY | 1075584 |
| 26 | | | WIRE, 105C, 18GA, BLUE, 600V | 31.5 | | 335174 |
| 27 | | | STRND WIRE, 14 AWG, YEL, 600V, 105C | 3 | | 1079956 |
| 28 | | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 4.75 | | 931191 |
| 29 | | | WIRE, VINYL, 14AWG, RED | 7.5 | | 931296 |
| 30 | | | WIRE, VINYL, 14AWG, WHITE | 3 | | 931268 |
| 31 | | | WIRE, VINYL, 18AWG, RED | 9 | | 931170 |
| 32 | | | STRAP, CABLE, .875 DIA | 7 | | 939110 |
| 33 | | UTPCH2 | CABLE, RJ45 TO RJ45, 2FT | 1 | PANDUIT | 282960 |
| 34 | | MX5-F02 | CONNECTOR, ETHERNET, RJ245-TO IDC, CAT5 | 1 | SIEMON | 1058224 |
| 35 | | MX-SM1-02 | BOX, SURFACE MOUNT, ETHERNET | 1 | SIEMON | 1078555 |
| 36 | | | TERMINAL, RINGTONG, INS, 16-14, 10 | 1 | | 933054 |
| 37 | | | NUT, HEX, MACH, #10-32, BRASS | 2 | | 984129 |
| 38 | | | WASHER, LK, E, SPT, #10, STL, NI | 1 | | 983120 |
| 39 | | | WASHER, FLT, E, .203X.406X.040, BR | 1 | | 983021 |
| 40 | | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | ALLEN BRADLEY | 1078531 |
| 41 | | | QUICKCONN, INS, FEM, .250"X.032", 14-16AWG | 4 | | 1049966 |
| 42 | | | TERMINAL, FLG, SPADE, INS, 16-14, 6 | 1 | | 933184 |
| 43 | | | LABEL SET, PANEL WIRING FOR 1055889 | 1 | | 1079873 |
| 44 | | | WASHER, LK, E, INT, #10, STL, ZN | 4 | | 983124 |
| 45 | | | LABEL, BLANK, 3.00X5.00 | 1 | | 603348 |
| 46 | | | MOUNT, CABLE STRAP | 1 | | 242837 |
| 47 | | | CONTROLLER, PROGRAMMED, GUN POS'R iCONTROL | 1 | | 1055963 |
| 48 | | | CAP, FLUSH, 7/8 DIA | 3 | | 900809 |

★ CUT JUMPER AS REQUIRED FOR REQUIRED LENGTHS.

***ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.**

| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |

| DRIVE JUMPER SETTINGS | | | | | | | | | |
|-----------------------|------|------|------|-----|-----|-----|-----|--|--|
| J2 | | | | | J6 | | | | |
| J1A | 10A | 7.5 | 5.0 | 2.5 | 1.7 | CTS | RTS | | |
| J1B | T50 | T7 | A180 | A90 | | | | | |
| J3 | | | | | J5 | | | | |
| J1 | J1A | J1B | J2 | J3 | J4 | J5 | J6 | | |
| NO | 115V | 115V | 2.5 | A90 | 15V | SPD | CTS | | |

⊗ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

MULTI-SPEED BOARD JUMPER SETTINGS

| | | |
|----------|--------------------------------|---------|
| PRESET 1 | LO - NO R/F - F HI - YES | FORWARD |
| PRESET 2 | LO - NO R/F - R HI - YES | REVERSE |
| PRESET 3 | LO - YES R/F - R HI - NO | BLOWOFF |
| PRESET 4 | N/A | |

ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

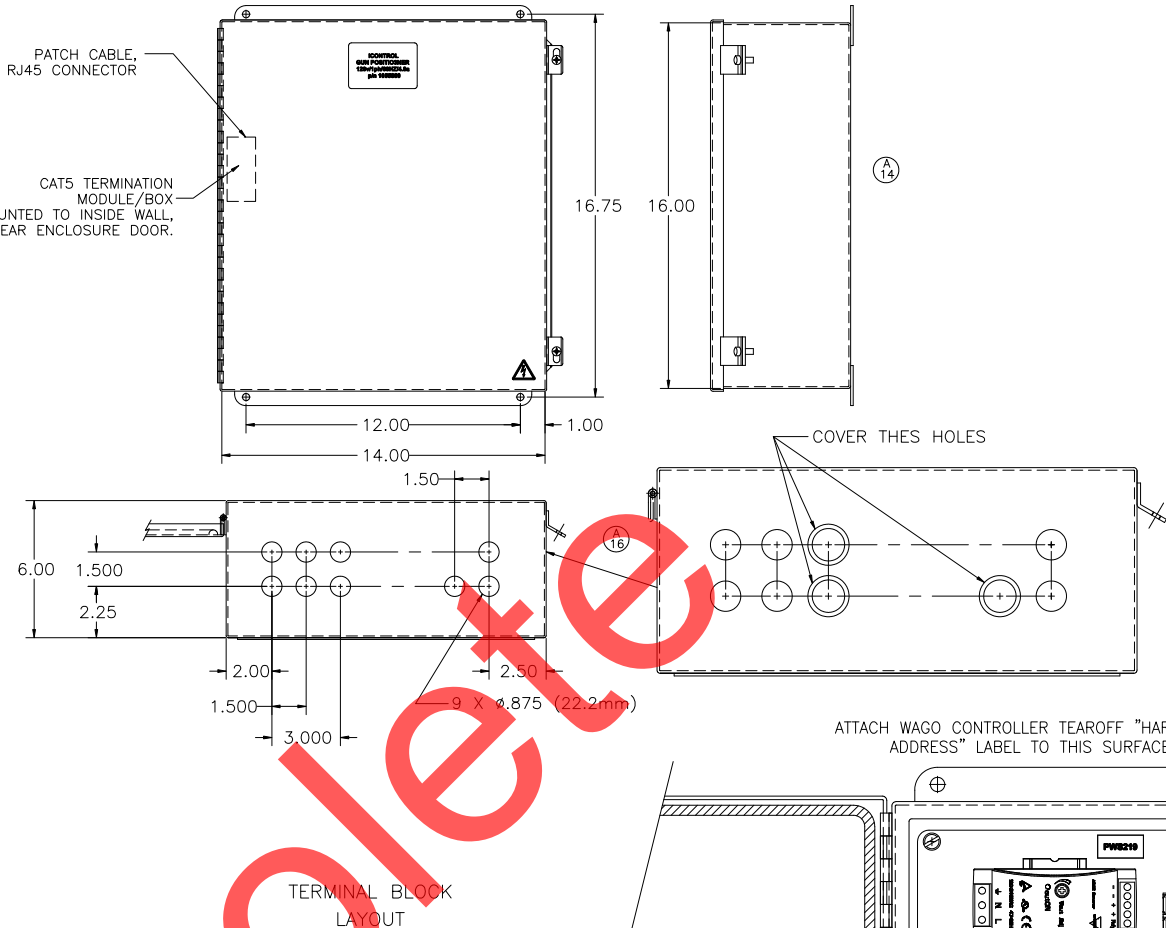
FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

| MULTI SPEED BOARD POT | %CLOCKWISE |
|-----------------------|------------|
| PRE 1 | 50-100% |
| PRE 2 | 50-100% |
| PRE 3 | 50% |
| PRE 4 | N/A |

| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |

NOTE:

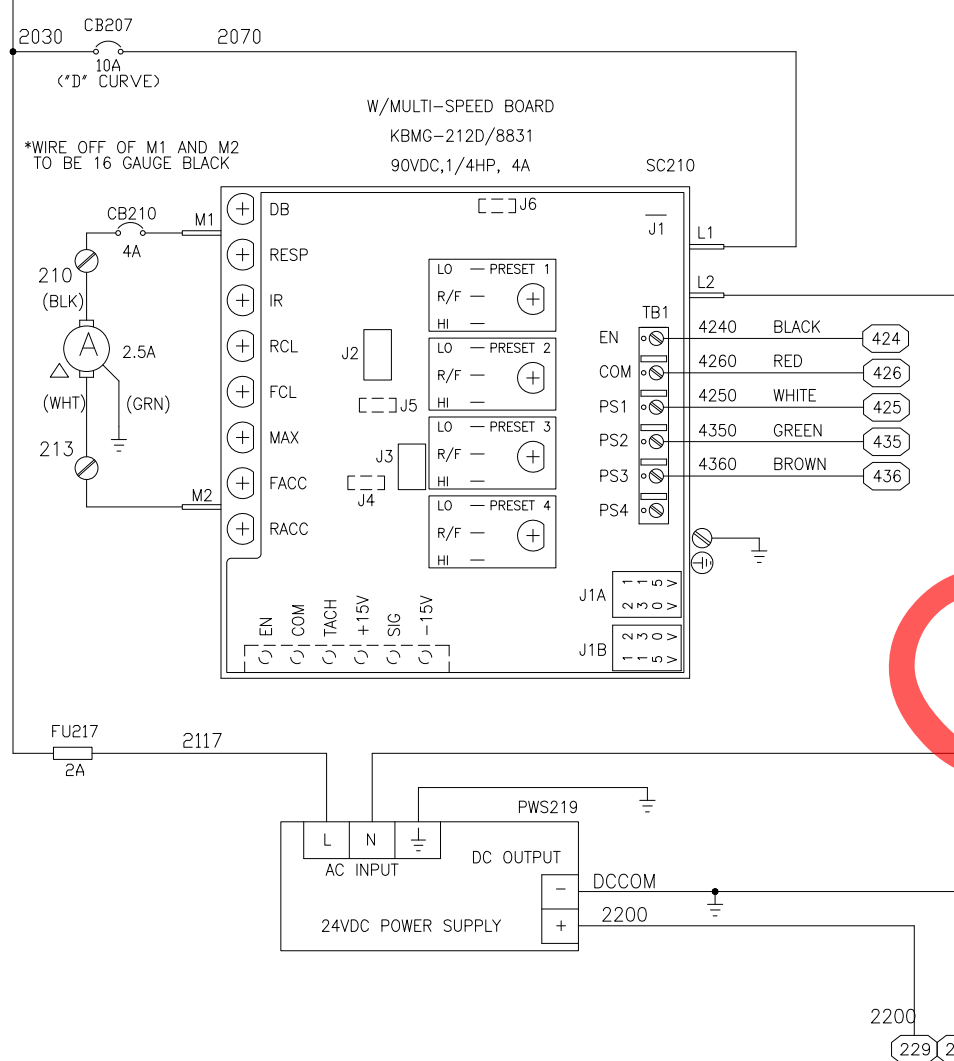
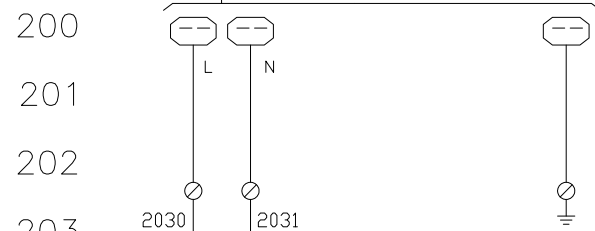
ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.



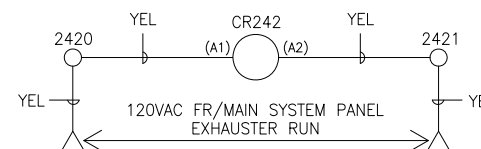
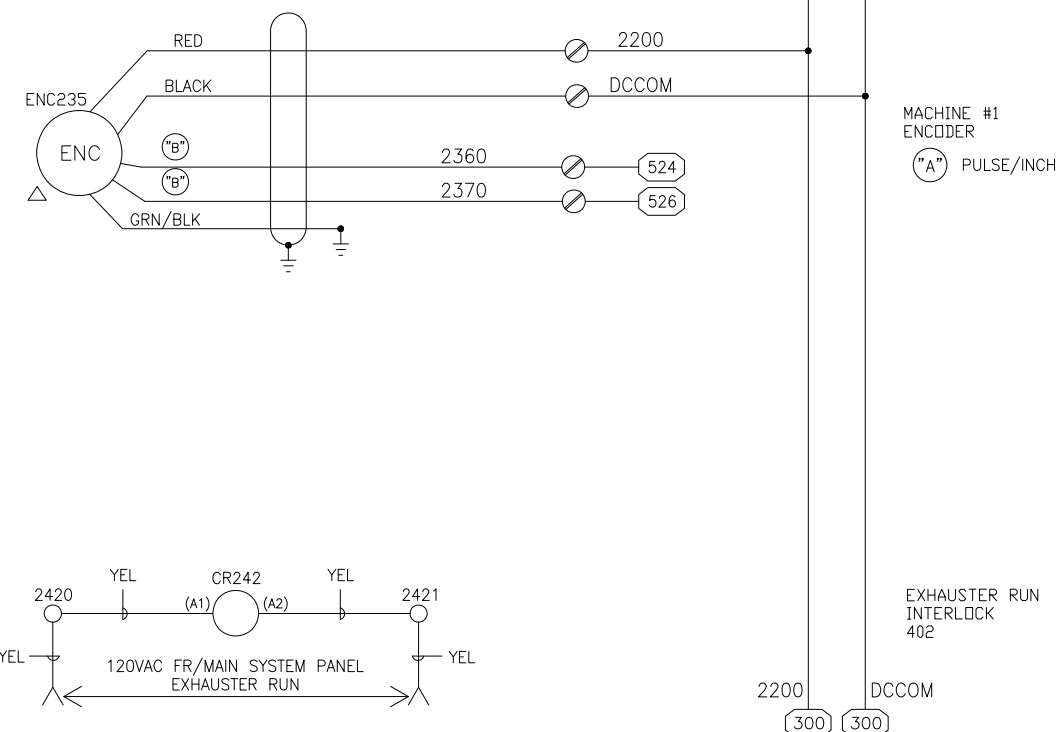
| |
|-------|
| PE |
| 5030 |
| 2001 |
| 2420 |
| 2421 |
| 210 |
| 213 |
| DDCOM |
| DDCOM |
| DDCOM |
| DDCOM |
| DDCOM |
| DDCOM |
| 2200 |
| 2200 |
| 2280 |
| 2270 |
| 3260 |
| 3280 |
| 3300 |
| 3310 |
| 3380 |
| 3380 |
| 3410 |
| 3420 |
| 4020 |
| 6020 |
| 6090 |
| 6200 |
| 6130 |
| 6140 |
| 6180 |
| 6200 |



| ITEM | ICT | PART NO. | DESCRIPTION | QTY. |
|--------------------------------------------------------|------------------------|----------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------|
| 1056206 | | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 | CHECKED BY | DATE 26JUL04 |
| FIRST PRODUCT USED ON | IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE37282 |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THIRD ANGLE PROJECTION | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | 1055889 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | | SCALE: FULL | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING |


REV. A16



| ENCODER RESOLUTION AND WIRING | | |
|-------------------------------|------------------|-------------------------------|
| BASE TYPE | PULSE/INCH ("A") | WIRING ("B") |
| RACK & PINION 1018682 | 262 | 2360 = GREEN 2370 = ORANGE |
| BELT-DRIVE 1056206 | 224 | 2360 = ORANGE 2370 = GREEN |

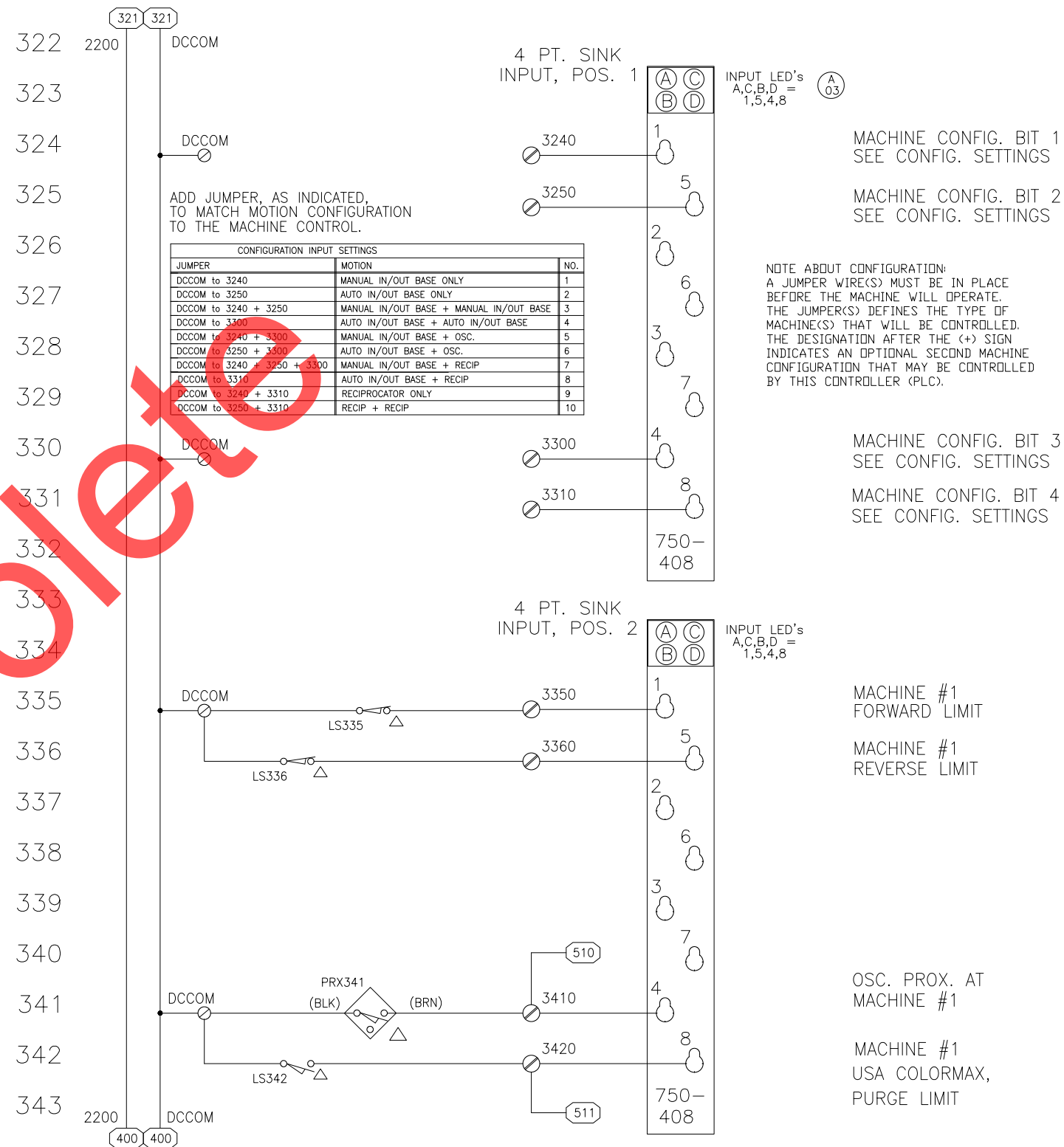


LEGEND
 - REMOTELY LOCATED DEVICE
 - GUNMOVER PANEL TERMINAL

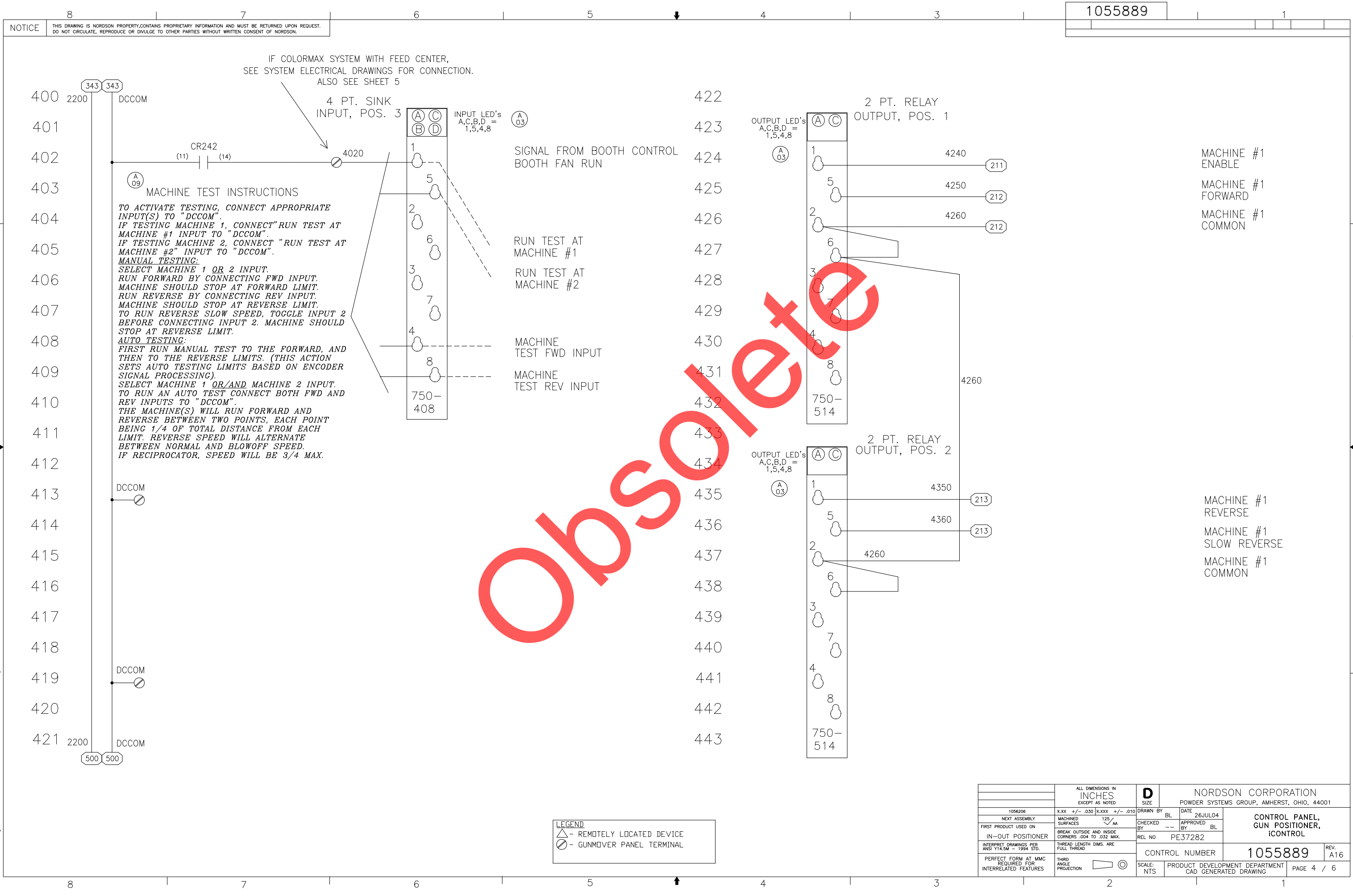
| | | | | | | | |
|--------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------|-------------|------------|-----------------------------------------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | NORDSON CORPORATION | | | | |
| | | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | | |
| 1056206 | XXX +/- .030 | X.XXX +/- .010 | DRAWN BY | BL | DATE | 26JUL04 | CONTROL PANEL, GUN POSITIONER, ICONTROL |
| NEXT ASSEMBLY | MACHINED SURFACES | $\frac{125}{AA}$ | CHECKED BY | -- | APPROVED BY | BL | |
| FIRST PRODUCT USED ON IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE37284 | | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1984 STD. | THREAD LENGTH DIMS. ARE TUL, TLEAD | | CONTROL NUMBER | | | 1055889 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION |  | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 2 / 6 | |



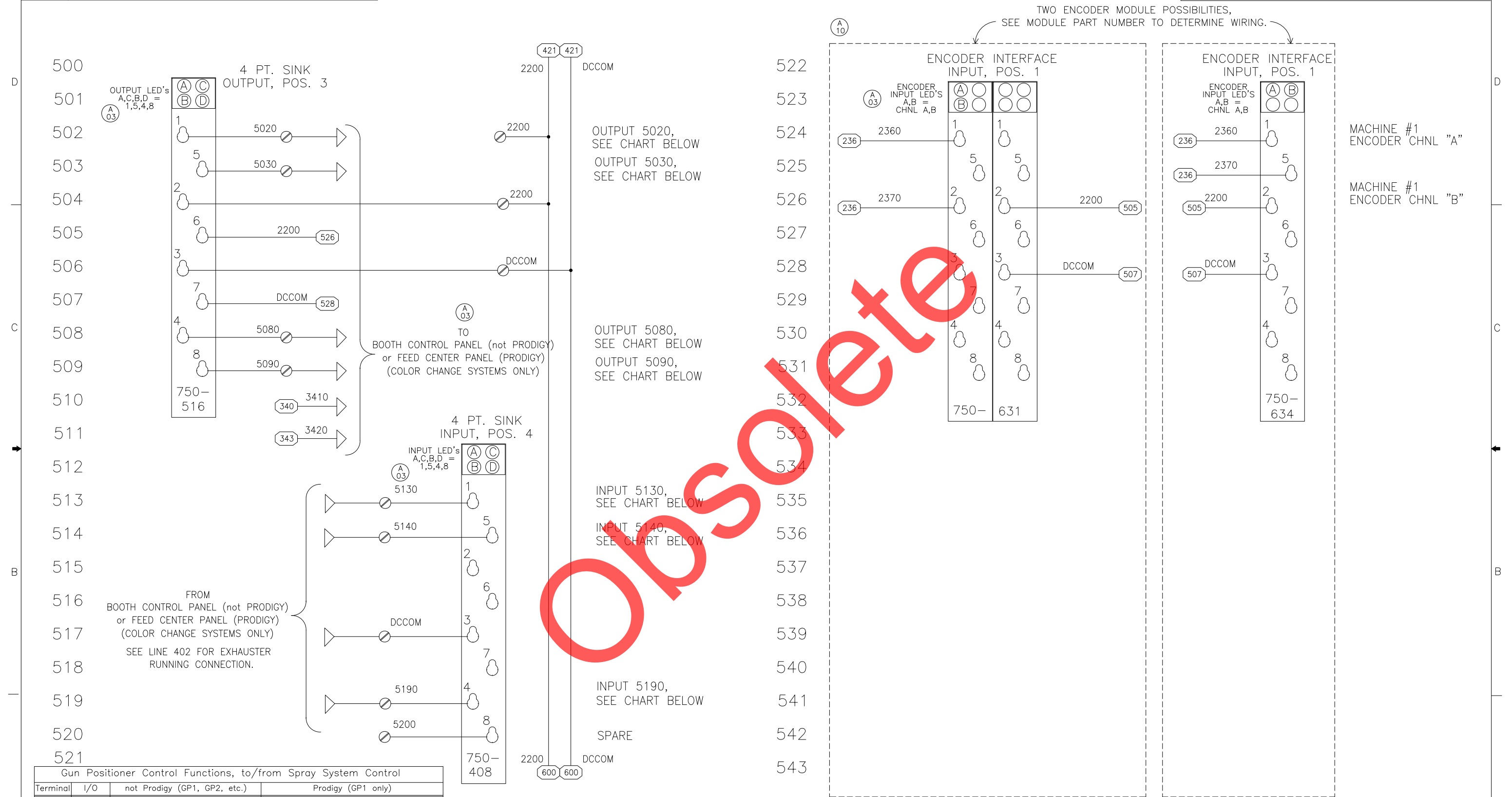
| CONFIGURATION INPUT SETTINGS | | |
|------------------------------|-----------------------------------------|----|
| JUMPER | MOTION | N |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCATOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |



| | | | | | | | |
|--------------------------------------------------------|----------------------------------------------------|------------------------------------------------|----------------|------------------|---------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| 1056206 | XXX +/- .030 | XXXX +/- .010 | DRAWN BY BL | | DATE 26JUL04 | | CONTROL PANEL, GUN POSITIONER, iCONTROL |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 | CHECKED BY -- | | APPROVED BY BL | | |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | | PE37282 | | |
| IN-OUT POSITIONER | THREAD LENGTH DIMS. ARE 1/4" THREAD | | CONTROL NUMBER | | 1055889 | | |
| INTERPRET DRAWINGS PER ANSI Y4.5M - 1994 STD. | THIRD ANGLE PROJECTION | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | REV. A16 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | | | | | | PAGE 3 / 6 |




| | |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOTICE | THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON. |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-----------------------------------------|
| Terminal | I/O | not Prodigy (GP1, GP2, etc.) | Prodigy (GP1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | * Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control (all GP's) |
| 5080 | OUTPUT | Ready for Color Change | Color Change Start From iControl |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

* "Mechanical Brake Control" function active if vertical gun positioner.
If Oscillator, then brake function is disabled, positioner is not vertical.

LEGEND
 - REMOTELY LOCATED DEVICE
 - GUNMOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------|-----------------------------------------------|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| 1058206 | X.XX +/- .030 | X.XXX +/- .010 | DRAWN BY | DATE | CONTROL PANEL, GUN POSITIONER, iCONTROL |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 / AA | CHECKED BY | 26JUL04 | |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE37282 | |
| IN-OUT POSITIONER | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | |
| INTERPLOT DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | 1055889 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | |  | | REV. A16 | |
| | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 5 / 6 | |



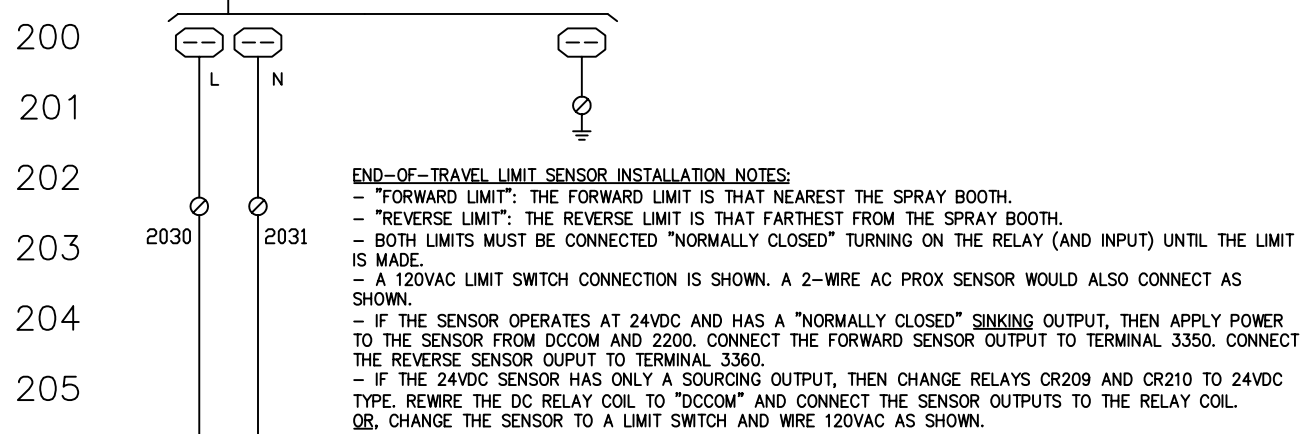
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1055889

LEGEND
△ - REMOTELY LOCATED DEVICE
○ - GUN POSITIONER PANEL TERMINAL

| | | | | |
|--------------------------------------------------------|----------------------------------------------------------------|----------------|-------------------------------------------------------------------|------------------------|
| | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | D | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| 1056206 | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | BL | DATE 26JUL04 |
| NEXT ASSEMBLY | MACHINED SURFACES 125 / AA | CHECKED BY | -- | APPROVED BY BL |
| FIRST PRODUCT USED ON IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. FULL THREAD | REL NO | PE37282 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1055889 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | REV. A16 PAGE 6 / 6 |

USERS 120V
1PH,60 Hz,
10 AMP SUPPLY



END-OF-TRAVEL LIMIT SENSOR INSTALLATION NOTES:

- "FORWARD LIMIT": THE FORWARD LIMIT IS THAT NEAREST THE SPRAY BOOTH.
 - "REVERSE LIMIT": THE REVERSE LIMIT IS THAT FARTHEST FROM THE SPRAY BOOTH.
 - BOTH LIMITS MUST BE CONNECTED "NORMALLY CLOSED" TURNING ON THE RELAY (AND INPUT) UNTIL THE LIMIT IS MADE.
 - A 120VAC LIMIT SWITCH CONNECTION IS SHOWN. A 2-WIRE AC PROX SENSOR WOULD ALSO CONNECT AS SHOWN.
 - IF THE SENSOR OPERATES AT 24VDC AND HAS A "NORMALLY CLOSED" SINKING OUTPUT, THEN APPLY POWER TO THE SENSOR FROM DCCOM AND 2200. CONNECT THE FORWARD SENSOR OUTPUT TO TERMINAL 3350. CONNECT THE REVERSE SENSOR OUTPUT TO TERMINAL 3360.
 - IF THE 24VDC SENSOR HAS ONLY A SOURCING OUTPUT, THEN CHANGE RELAYS CR209 AND CR210 TO 24VDC TYPE. REWIRE THE DC RELAY COIL TO "DCCOM" AND CONNECT THE SENSOR OUTPUTS TO THE RELAY COIL.
- OR, CHANGE THE SENSOR TO A LIMIT SWITCH AND WIRE 120VAC AS SHOWN.

MOVEMENT CONTROL DEVICE INSTALLATION NOTES:

- "ENABLE": IF A MOTOR IS THE METHOD OF MACHINE MOVEMENT AND A SPEED CONTROLLER PROVIDES THE FORWARD/REVERSE DIRECTIONAL CONTROL, THEN AN DRIVE ENABLE CIRCUIT MAY BE REQUIRED. CONNECT 2120 AND 2121 TO THE SPEED CONTROLLER ENABLE CIRCUIT. WHEN CR424 IS ENERGIZED THEN THE SPEED CONTROLLER WOULD BE ENABLED FOR FORWARD AND REVERSE OPERATIONS. ENABLE IS ENERGIZED WHEN ICONTROL GUN POSITIONER MODE IS SET TO AUTO OR MANUAL.
- "FORWARD": CONNECT 2130 AND 2131 TO THE FORWARD DIRECTION CONTROL DEVICE OR SPEED CONTROLLER INPUT. WHEN CR425 IS ENERGIZED THEN THE POSITIONER WOULD MOVE FORWARD TOWARD THE SPRAY BOOTH.
- "REVERSE": CONNECT 2140 AND 2141 TO THE REVERSE DIRECTION CONTROL DEVICE OR SPEED CONTROLLER INPUT. WHEN CR430 IS ENERGIZED THEN THE POSITIONER WOULD MOVE REVERSE AWAY FROM THE SPRAY BOOTH.
- "BRAKE": CONNECT 2150 AND 2151 TO ENERGIZE AND THEREFORE OPEN A MECHANICAL BRAKE DEVICE. WHEN CR431 IS ENERGIZED THE BRAKE WOULD OPEN.

INSTALLATION EXAMPLE FOR A 120VAC SOLENOID VALVE:
CONNECT A WIRE FROM TERMINAL 2032 TO 2132, 2142

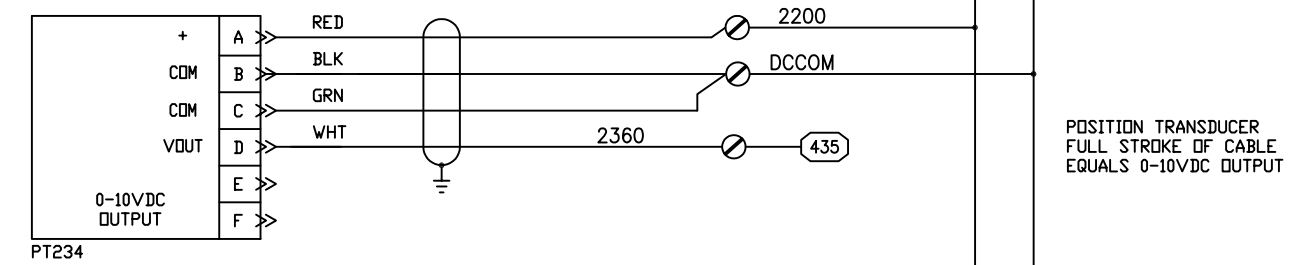
- CONNECT A WIRE FROM TERMINAL 2070 TO 2130, 2140, AND 2150. THIS APPLIES 120 VAC TO THE CONTROL DEVICE CIRCUITS.
- CONNECT 2131 TO ONE TERMINAL OF THE FORWARD SOLENOID. CONNECT 2141 TO ONE TERMINAL OF THE REVERSE SOLENOID. CONNECT 2151 TO ONE TERMINAL OF THE BRAKE SOLENOID (IF REQUIRED).
- CONNECT 2031 TO THE REMAINING (COMMON) TERMINAL ON ALL SOLENOIDS TO COMPLETE THE ELECTRICAL CIRCUIT.

INSTALLATION EXAMPLE FOR A 24VDC SOLENOID VALVE:

- INSTALLATION EXAMPLE FOR A 24VDC SOLENOID VALVE:**
- CONNECT A WIRE FROM TERMINAL 2200 TO 2130, 2140, AND 2150. THIS APPLIES 24VDC TO THE CONTROL DEVICE CIRCUITS.
 - CONNECT 2131 TO THE (+) TERMINAL OF THE FORWARD SOLENOID. CONNECT 2141 TO THE (+) TERMINAL OF THE REVERSE SOLENOID. CONNECT 2151 TO THE (+) TERMINAL OF THE BRAKE SOLENOID (IF REQUIRED).
 - CONNECT DCCOM TO THE NEGATIVE TERMINAL ON ALL SOLENOIDS TO COMPLETE THE ELECTRICAL CIRCUIT.

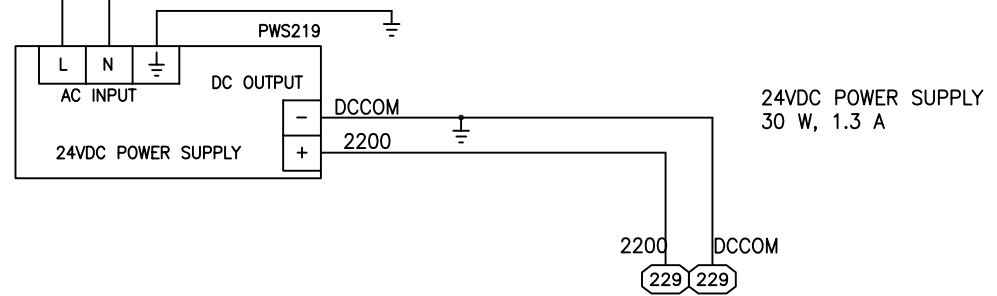
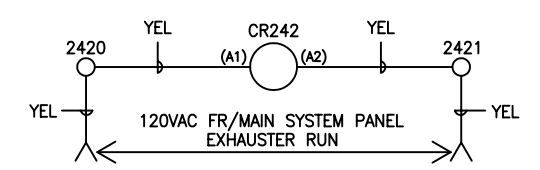
TRANSDUCER INSTALLATION NOTES:

- TRANSDUCER INSTALLATION RULES:**
- THE POSITION TRANSDUCER MUST BE MOUNTED AT THE REAR (REVERSE LIMIT) END OF THE POSITIONER BASE. CABLE WILL EXTEND WHEN MOVEMENT IS FORWARD.
- MOUNT SO THAT THE CABLE IS NOT QUITE FULLY RETRACTED IN TO THE TRANSDUCER WHEN THE POSITIONER CARRIAGE IS AT ITS MAXIMUM MECHANICAL REVERSE POSITION
 - MAKE SURE THAT THE MAXIMUM CABLE EXTENSION OF THE POSITION TRANSDUCER IS GREATER THAN THE MAXIMUM STROKE LENGTH OF THE GUN POSITIONER PLUS THE AMOUNT OF CABLE EXPOSED WHEN THE CARRIAGE IS AT ITS MAXIMUM MECHANICAL REVERSE POSITION.



iCONTROL CONFIGURATION PARAMETER NOTES:

- SET THE ENCODER SCALE VALUE ON THE iCONTROL GUN POSITIONER CONFIGURATION SCREEN TO "1".
- SET THE REVERSE LIMIT VALUE ON THE iCONTROL GUN POSITIONER CONFIGURATION SCREEN TO A NUMBER EQUAL TO THE "MEASURED" FULL STROKE TRAVEL DISTANCE OF THE GUN POSITIONER.



FORWARD LIMIT
335

REVERSE LIMIT
336

CR424 ENABLES A MOTOR
SPEED CONTROLLER (OPTIONAL)


CR425 ACTIVATES THE FORWARD DIRECTION

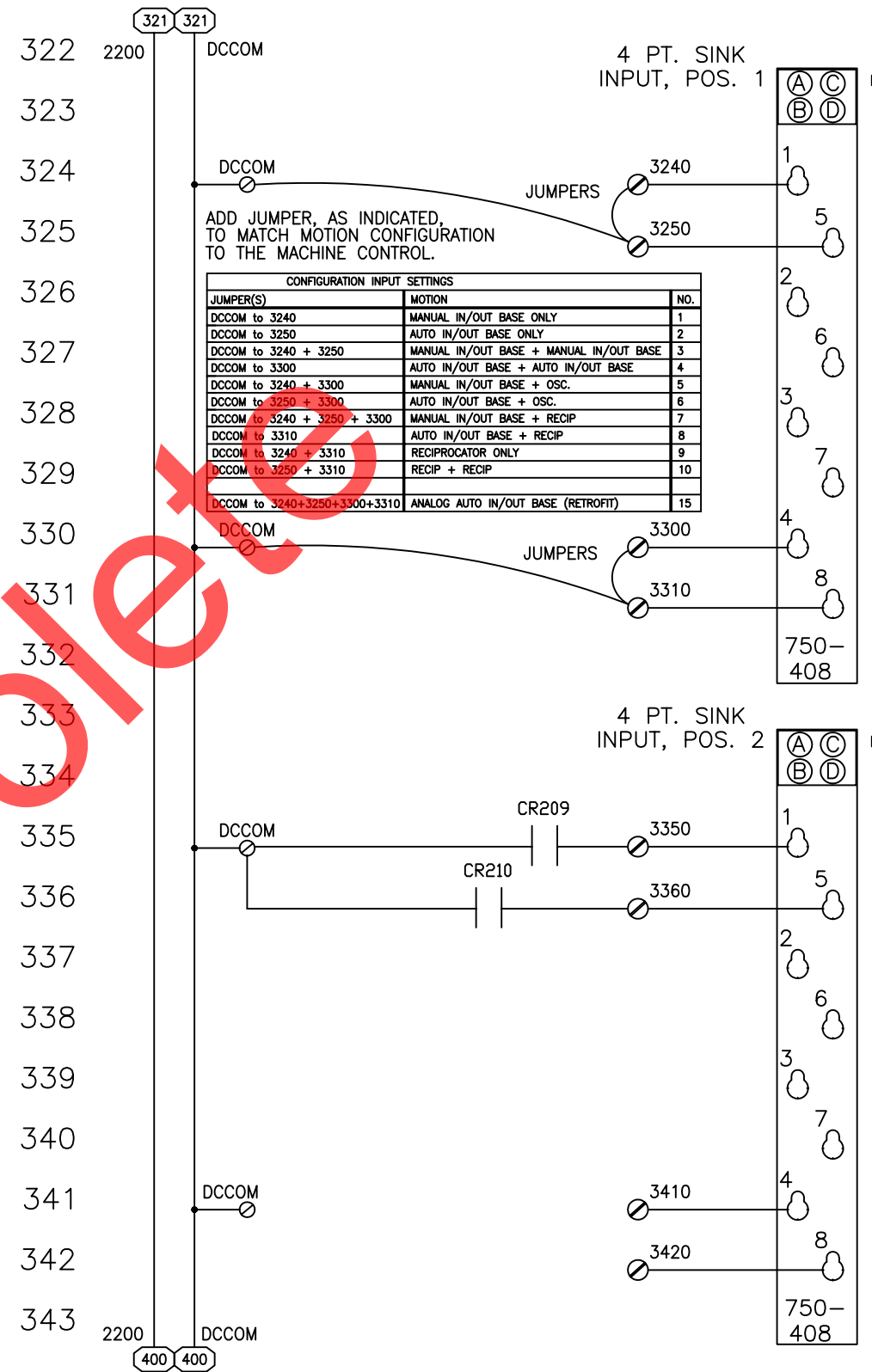
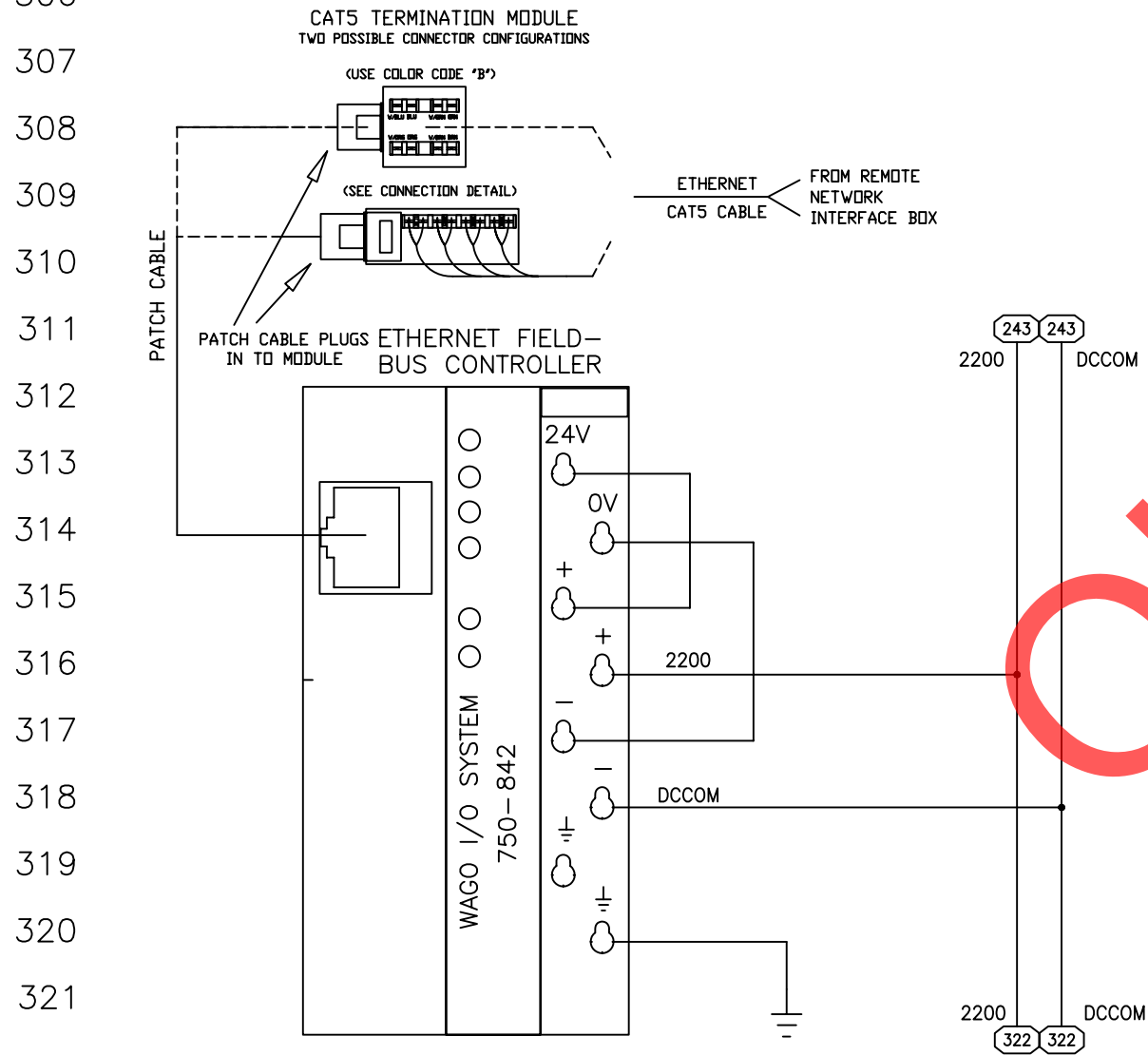
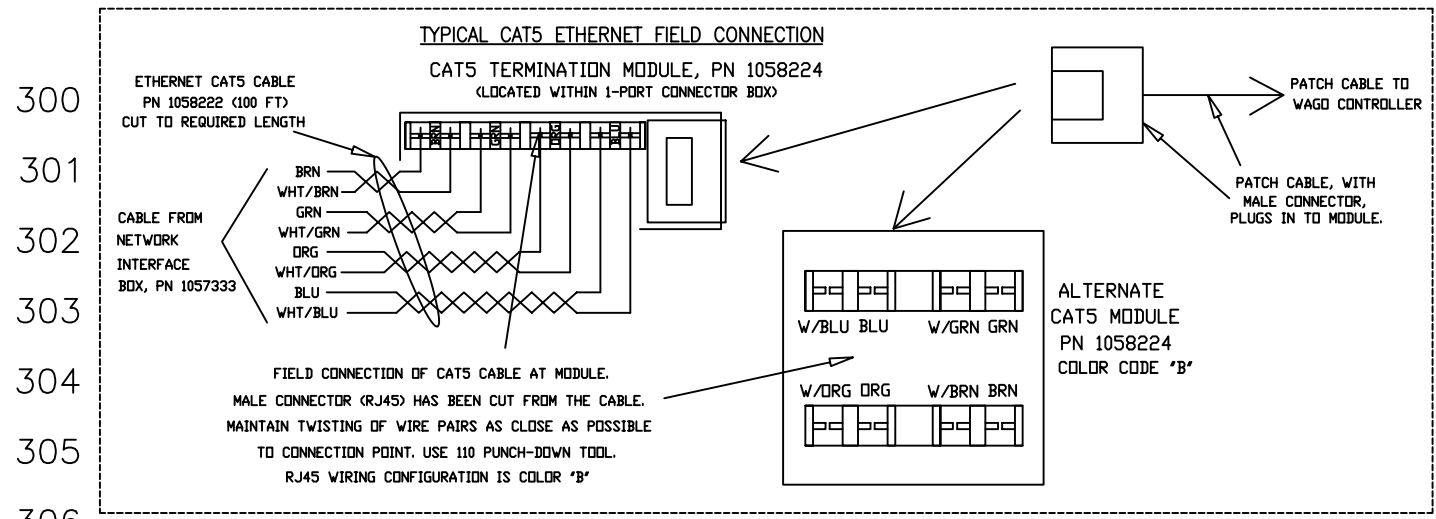
~~CR430 ACTIVATES THE REVERSE DIRECTION~~

CR431 OPENS A HOLDING
BRAKE DEVICE (OPTIONAL)

LEGEND

- △ - REMOTELY LOCATED DEVICE
- ⊘ - GUNMOVER PANEL TERMINAL
- - J-BOX TERMINAL

| | | | | | | | |
|--------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------|--|------------------|--|--------------------------------------------------------------------------|--|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| SEE SHEET 1 | | X.XXX +/- .030 X.XXX +/- .010 | | DRAWN BY BL | | DATE 1MAR05 | |
| NEXT ASSEMBLY | | MACHINED SURFACES 125 \sqrt{A} | | CHECKED BY -- | | APPROVED BY -- | |
| FIRST PRODUCT USED ON IN-OUT POSITIONER | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO PE37289 | | CONTROL PANEL, ANALOG POSITIONER, I CONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M -- 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1055883 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION  | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | | | REV. A05 | |
| | | | | | | PAGE 2 / 4 | |



INPUT LED's
A,C,B,D =
1,5,4,8

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS



MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS


INPUT LED's
A,C,B,D =
1,5,4,8

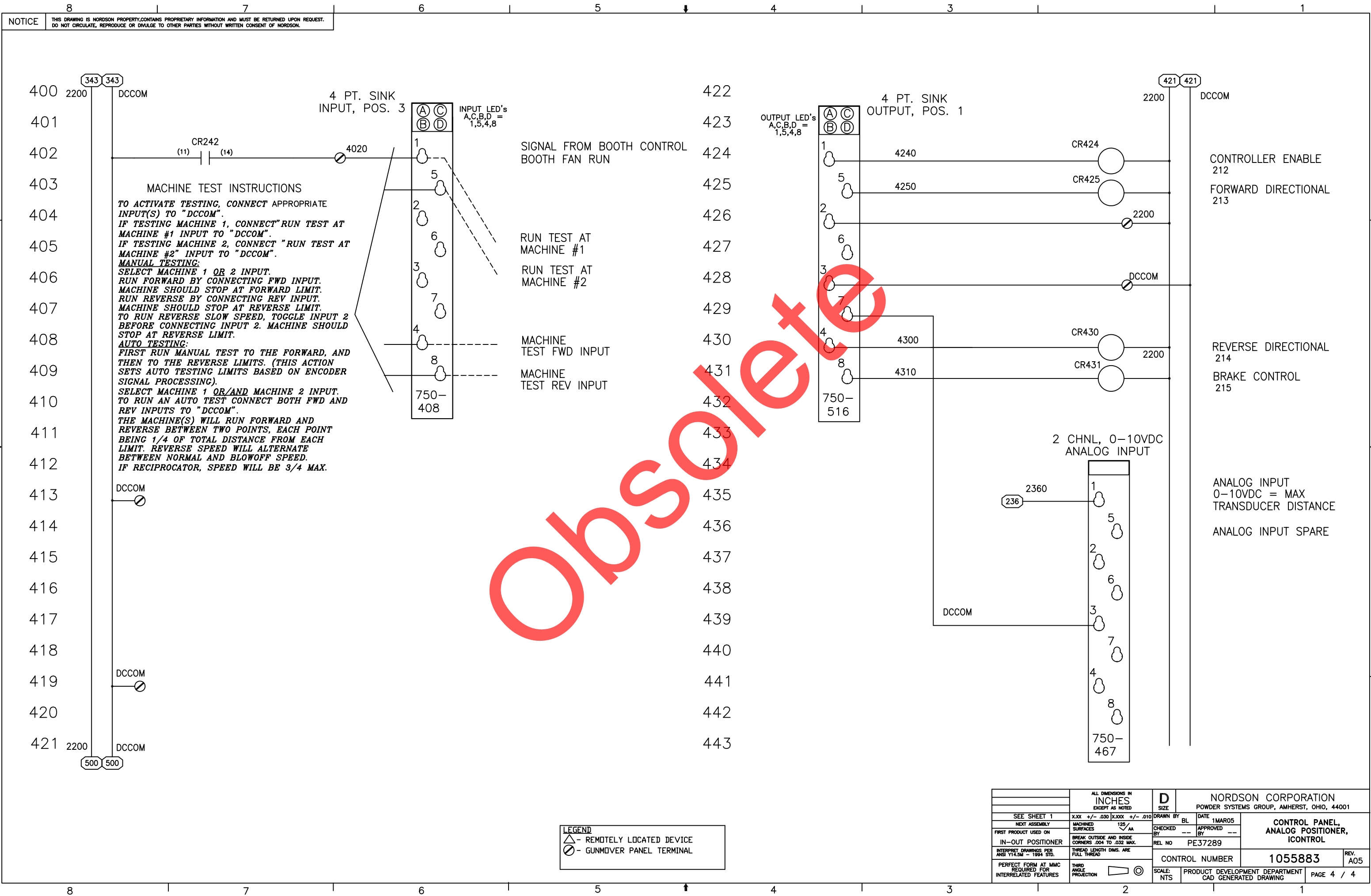
FORWARD LIMIT

REVERSE LIMIT

| CONFIGURATION INPUT SETTINGS | | |
|------------------------------|-----------------------------------------|-----|
| JUMPER(S) | MOTION | NO. |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCTOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |
| DCCOM to 3240+3250+3300+3310 | ANALOG AUTO IN/OUT BASE (RETROFIT) | 15 |

LEGEND
 - REMOTELY LOCATED DEVICE
 - GUNMOVER PANEL TERMINAL

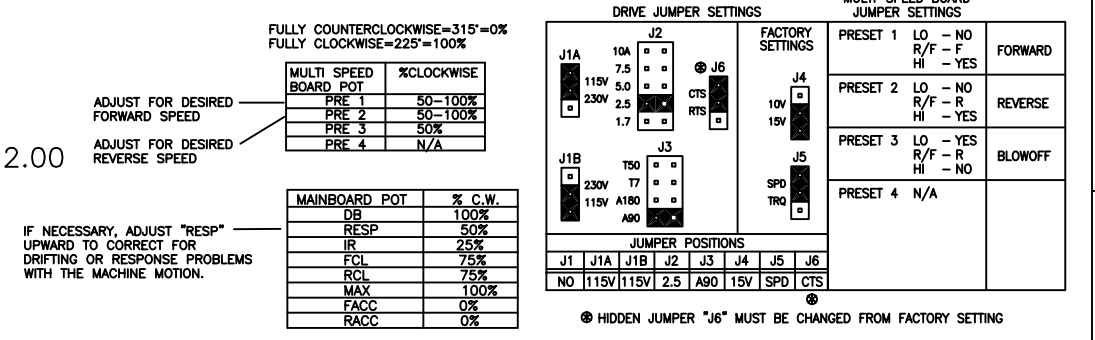
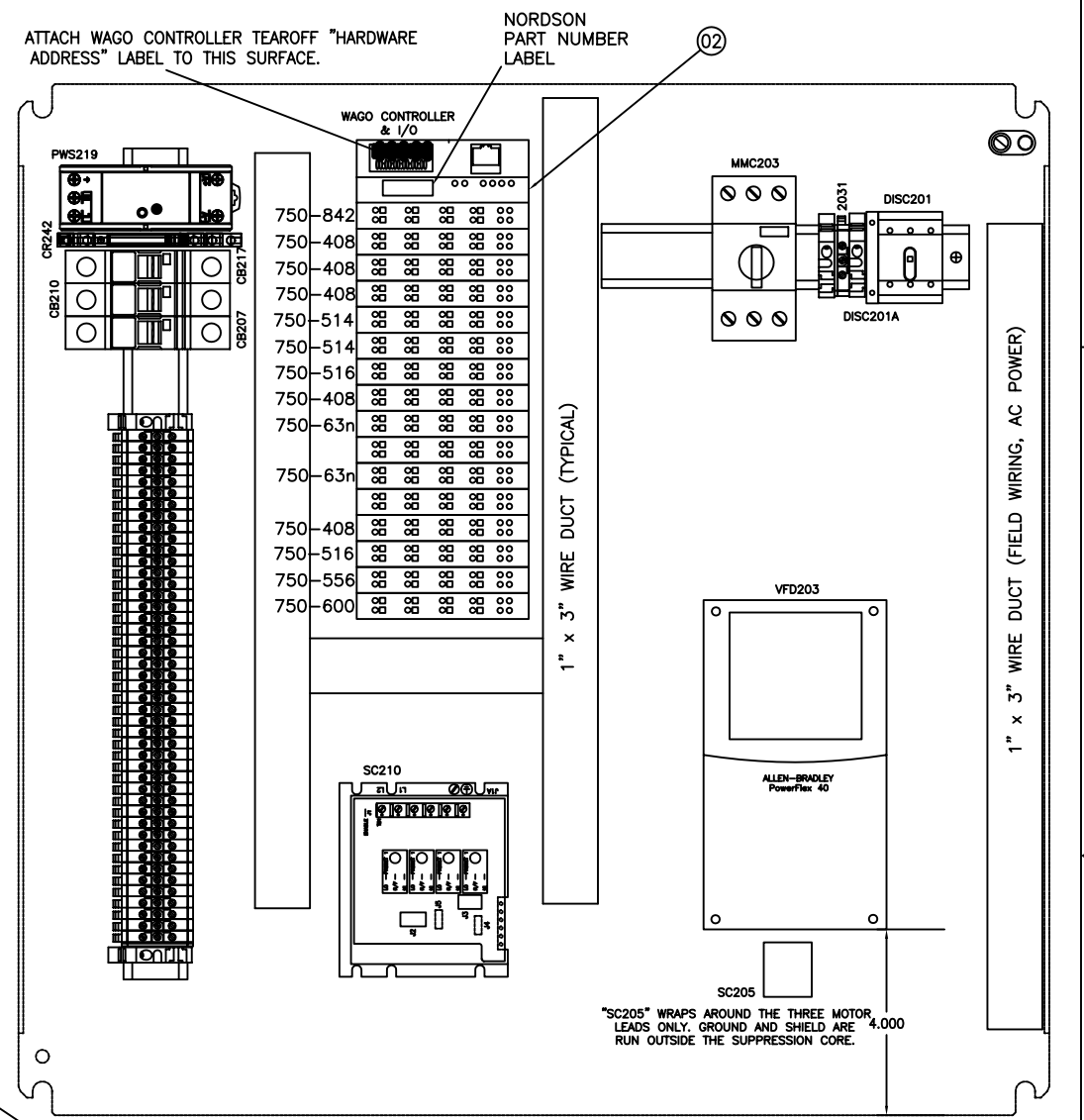
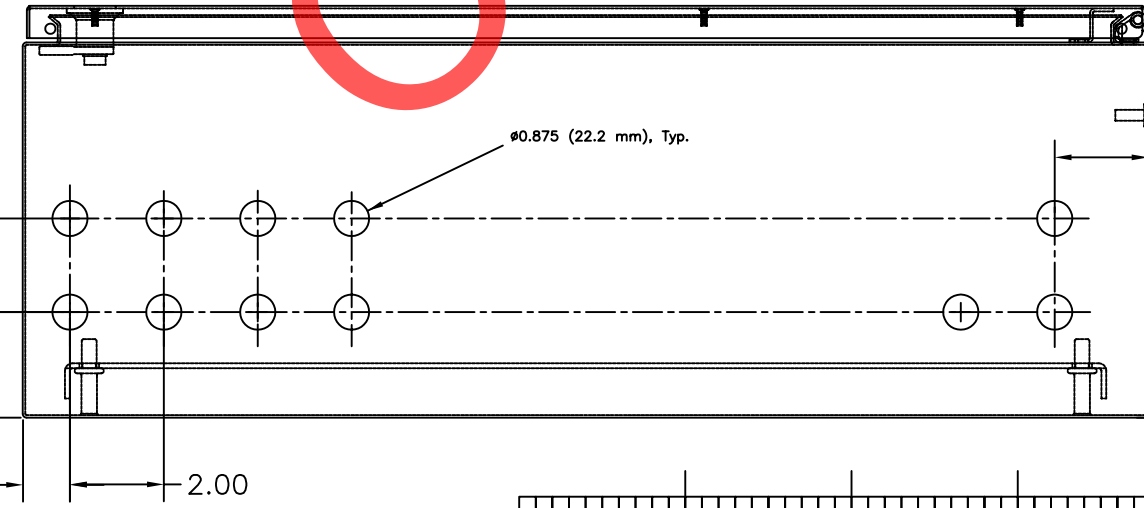
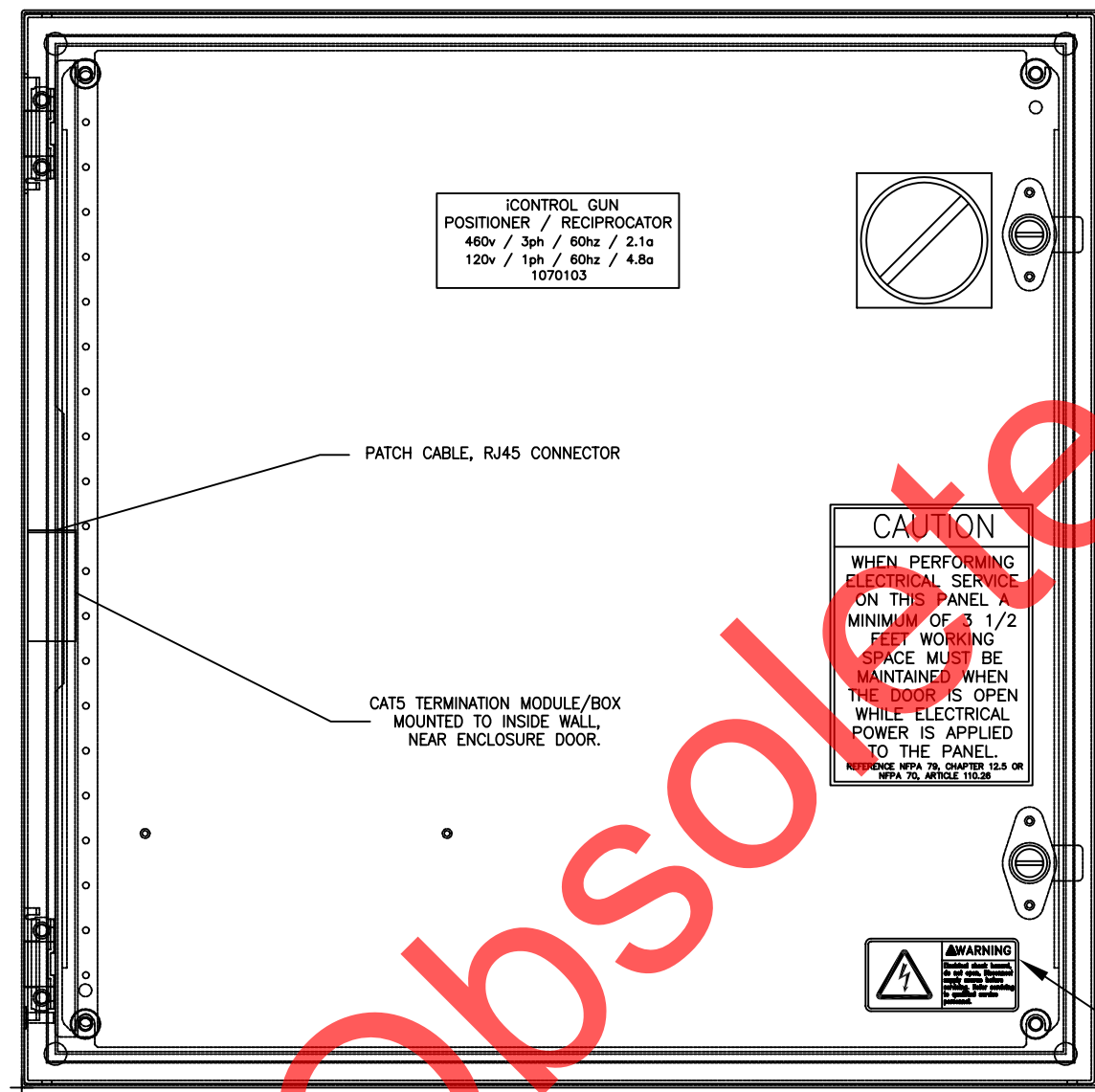
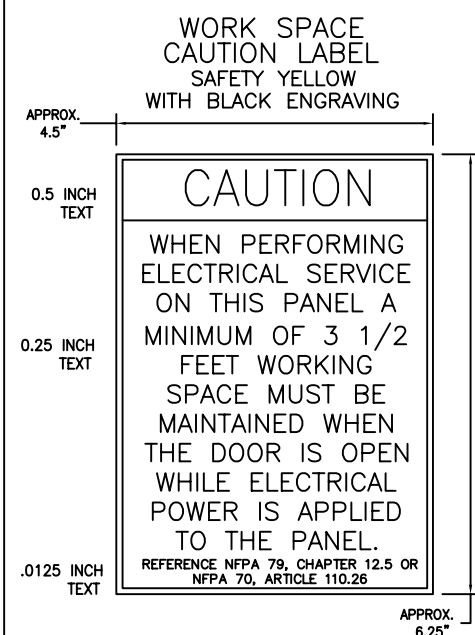
| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------|----------------|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| SEE SHEET 1 | X.XX +/- .030 | X.XXX +/- .010 | DRAWN BY | BL | DATE 1MAR05 |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 / AA | CHECKED BY | -- | APPROVED BY -- |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE37289 | |
| IN-OUT POSITIONER | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1055883 |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | | | | REV. A05 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION |  | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 3 / 4 |



| NOTICE | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------|----------------|
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| VENDOR'S BILL OF MATERIAL | | | |
| QTY | ITEM | PART NO. | MFG. |
| 1 | ENCLOSURE | SEE INVERTER CHART | HOFFMAN |
| 1 | SUB-PLATE | C-P2424 | HOFFMAN |
| A/R | DIN RAIL | D5PD2-20 | CUTLER-HAMMER |
| 4 | END ANCHOR | C383ES35 | CUTLER-HAMMER |
| 2 | END PLATE | C383AP4 | CUTLER-HAMMER |
| 46 | TERMINAL BLOCK | C383RK254 | CUTLER-HAMMER |
| 1 | JUMPER | C383JC402 | CUTLER-HAMMER |
| 1 | GROUND TERMINAL | PK7GTA | SQUARE D |
| 1 | GROUND LUG | ---- | ---- |
| 1 | CIRCUIT BREAKER | WMS1C4 | CUTLER-HAMMER |
| 1 | CIRCUIT BREAKER | WMS1D10 | CUTLER-HAMMER |
| 1 | CIRCUIT BREAKER | WMS1C2 | CUTLER-HAMMER |
| A/R | WIRE DUCT, 1" x 3" | ---- | ---- |
| 1 | WORKING SPACE CAUTION LABEL, SAFETY YELLOW, WITH BLACK ENGRAVING | CUSTOM | ---- |
| 1 | RELAY, 120VAC, SPDT, DIN-RAIL MOUNT | 700-HLT1U1 | ALLEN-BRADLEY |
| 1 | POWER SUPPLY, 30 WATT | PS5R-SC24 | IDEC |
| 1 | DISCONNECT SWITCH | OT16E3 | ABB |
| 1 | HANDLE | OHB2AJ1 | ABB |
| 1 | SHAFT | OXSS180 | ABB |
| 1 | ADAPTER, PADLOCK, OPEN PANEL | DS-SA1 | ABB |
| 1 | AUX. CONTACT, DISCONNECT | ---- | ABB |
| 1 | INVERTER, 3-PH, 1-HP | SEE INVERTER CHART | ALLEN-BRADLEY |
| 1 | EMI SUPPRESSION CORE, SPLIT HALVES (SC205) | 0043167251 | FAIR-RITE |
| 1 | MANUAL MOTOR CONTROLLER | SEE INVERTER CHART | CUTLER-HAMMER |
| 1 | DC DRIVE | KBMG-212D | KB ELECTRONICS |
| 1 | MULTI-SPEED BOARD | 8833 | KB ELECTRONICS |
| 1 | PROGRAMMED ETHERNET FIELD BUS CONTROLLER, WAGO pr750-842 | SEE ITEM 02 | NORDSON |
| 5 | MODULE, INPUT, SINK, 4 PT. | 750-408 | WAGO |
| 2 | MODULE, OUTPUT, SINK, 4 PT. | 750-516 | WAGO |
| 2 | MODULE, OUTPUT, RELAY, 2 PT. | 750-514 | WAGO |
| 2 | MODULE, INTERFACE, ENCODER | 750-631 | WAGO |
| 1 | MODULE, INTERFACE, ENCODER | 750-634 | WAGO |
| 1 | MODULE, OUTPUT, ALG., +/- 10VDC | 750-556 | WAGO |
| 1 | MODULE, END | 750-600 | WAGO |
| 1 | MAX MODULE, CAT5, ETHERNET | MX5-F02 | SIEMON |
| 1 | CONNECTOR BOX, 1-PORT, ETHERNET | MX-SM1-02 | SIEMON |
| 1 | PATCH CABLE, CAT5e, T568B, ETHERNET, 24" | ---- | ---- |

* - 750-631 AND 750-634 ARE INTERCHANGABLE MODULES, 750-634 REPLACING 750-631.
- MARK THIS ITEM AS "SC205". FOR SHIPMENT, SECURE VIA CLEAR PACKING TAPE TO THE FRONT COVER OF THE INVERTER, ITEM VFD203.

| INVERTER CHART | | | | | |
|----------------|--------------|--------------|--------------|---------|---------|
| 3-PH VOLTS | 208 | 230 | 380 | 480 | 575 |
| CONTROLLER | A-302JN | A-302HN | A-302GN | A-302GN | A-302GN |
| INVERTER | 22B-B5P0N104 | 22B-D2P3N104 | 22B-E1P7N104 | | |
| ENCLOSURE | C-SD24248 | | | | |

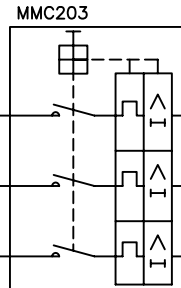
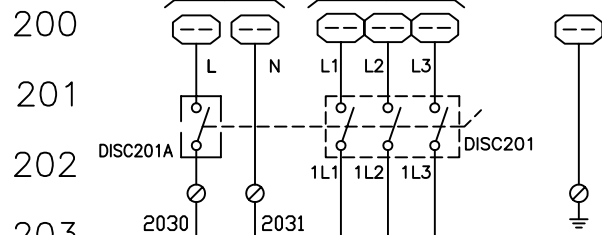


| 02 | L | 1055963 | CONTROLLER, PROGRAMMED, GUN POS'R iCONTROL | 1 |
|-------------------------------------------------------------------|-----|---------------------------------------------------------|--------------------------------------------|----------|
| 01 | L | 226709 | LABEL, WARNING, CONTROL PANEL | 1 |
| ITEM | ICT | PART NO. | DESCRIPTION | QTY. |
| NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | | |
| PANEL, iCONTROL POSITIONER, RECIPROCATOR | | | | |
| CONTROL NUMBER | | | 1070103 | REV. A11 |
| SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | |
| PAGE 1 / 6 | | | | |

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USERS 120V
1PH, 60 Hz,
10 AMP SUPPLY

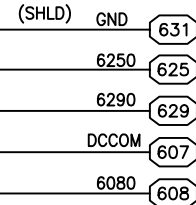
USERS 3PH,
60Hz SUPPLY



VFD203

Allen-Bradley
PowerFlex 40

DIP-SWITCH
SETTINGS
0-10V ☒
0-20mA ☒
SNK ☒
SRC ☒



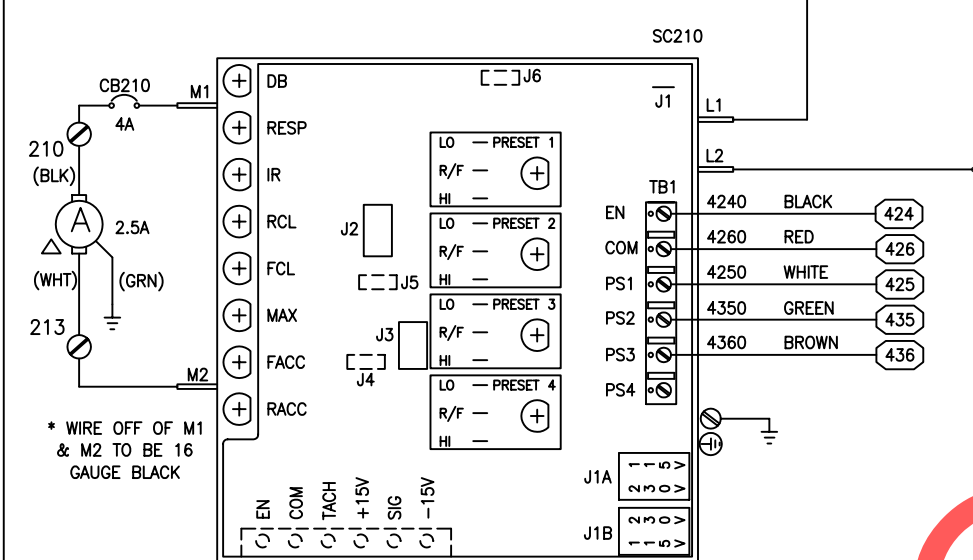
| PARAMETER SETTINGS | | |
|--------------------|-------|----------------------------------|
| P | VALUE | DESCRIPTION |
| P031 | A/R | MOTOR NAMEPLATE "VOLTS" |
| P033 | A/R | MOTOR NAMEPLATE "FULL LOAD AMPS" |
| P035 | 70 | MAXIMUM FREQUENCY |
| P036 | 2 | START SOURCE - "2-WIRE" |
| P037 | 4 | STOP MODE - "RAMP" |
| P038 | 2 | SPEED REFERENCE - "0-10V INPUT" |
| P039 | 0.2 | ACCELERATION TIME |
| P040 | 0.2 | DECELERATION TIME |
| A123 | 1 | 10V BIPOLAR ENBL - "BI-POLAR IN" |

TO CHANGE PARAMETERS:
REFER TO ALLEN-BRADLEY POWERFLEX 40 USERS MANUAL, VIEWING AND
EDITING PARAMETERS.

RECIPROCATOR MOTOR
3 PH, 1 HP, INVERTER DUTY

"SC205" WRAPS AROUND THE THREE MOTOR
LEADS ONLY. GROUND AND SHIELD ARE
RUN OUTSIDE THE SUPPRESSION CORE.

2030 CB207
10A
(D CURVE)



D

C

B

A

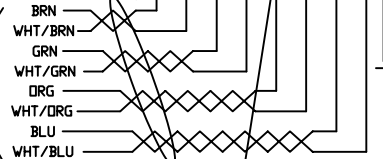
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321

TYPICAL CAT5 ETHERNET FIELD CONNECTION

ETHERNET CAT5 CABLE
PN 1058222 (100 FT)
CUT TO REQUIRED LENGTH

CAT5 TERMINATION MODULE, PN 1058224
(LOCATED WITHIN 1-PORT CONNECTOR BOX)

CABLE FROM
NETWORK
INTERFACE
BOX, PN 1057333



FIELD CONNECTION OF CAT5 CABLE AT MODULE.
MALE CONNECTOR (RJ45) HAS BEEN CUT FROM THE CABLE.
MAINTAIN TWISTING OF WIRE PAIRS AS CLOSE AS POSSIBLE
TO CONNECTION POINT. USE 110 PUNCH-DOWN TOOL.
RJ45 WIRING CONFIGURATION IS COLOR 'B'

CAT5 TERMINATION MODULE
TWO POSSIBLE CONNECTOR CONFIGURATIONS

(USE COLOR CODE 'B')

(SEE CONNECTION DETAIL)

ETHERNET FROM REMOTE
CAT5 CABLE NETWORK
INTERFACE BOX

PATCH CABLE
PATCH CABLE PLUGS
IN TO MODULE

ETHERNET FIELD-
BUS CONTROLLER

WAGO I/O SYSTEM
750-842

24V

0V

2200

DCCOM

2200

DCCOM

243 243

DCCOM

2200

DCCOM

322 322

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

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343

321 321

2200 DCCOM

DCCOM

ADD JUMPER, AS INDICATED,
TO MATCH MOTION CONFIGURATION
TO THE MACHINE CONTROL.

| CONFIGURATION INPUT SETTINGS | | |
|------------------------------|-----------------------------------------|-----|
| JUMPER | MOTION | NO. |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCTOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |

DCCOM

JUMPER

243 243

2200 DCCOM

DCCOM

LS602

LS603

DCCOM

LS342

DCCOM

400 400

4 PT. SINK
INPUT, POS. 1

3240

3250

3300

3310

4 PT. SINK
INPUT, POS. 2

3350

3360

3410

3420

INPUT LED's
A,C,B,D =
1,5,4,8

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

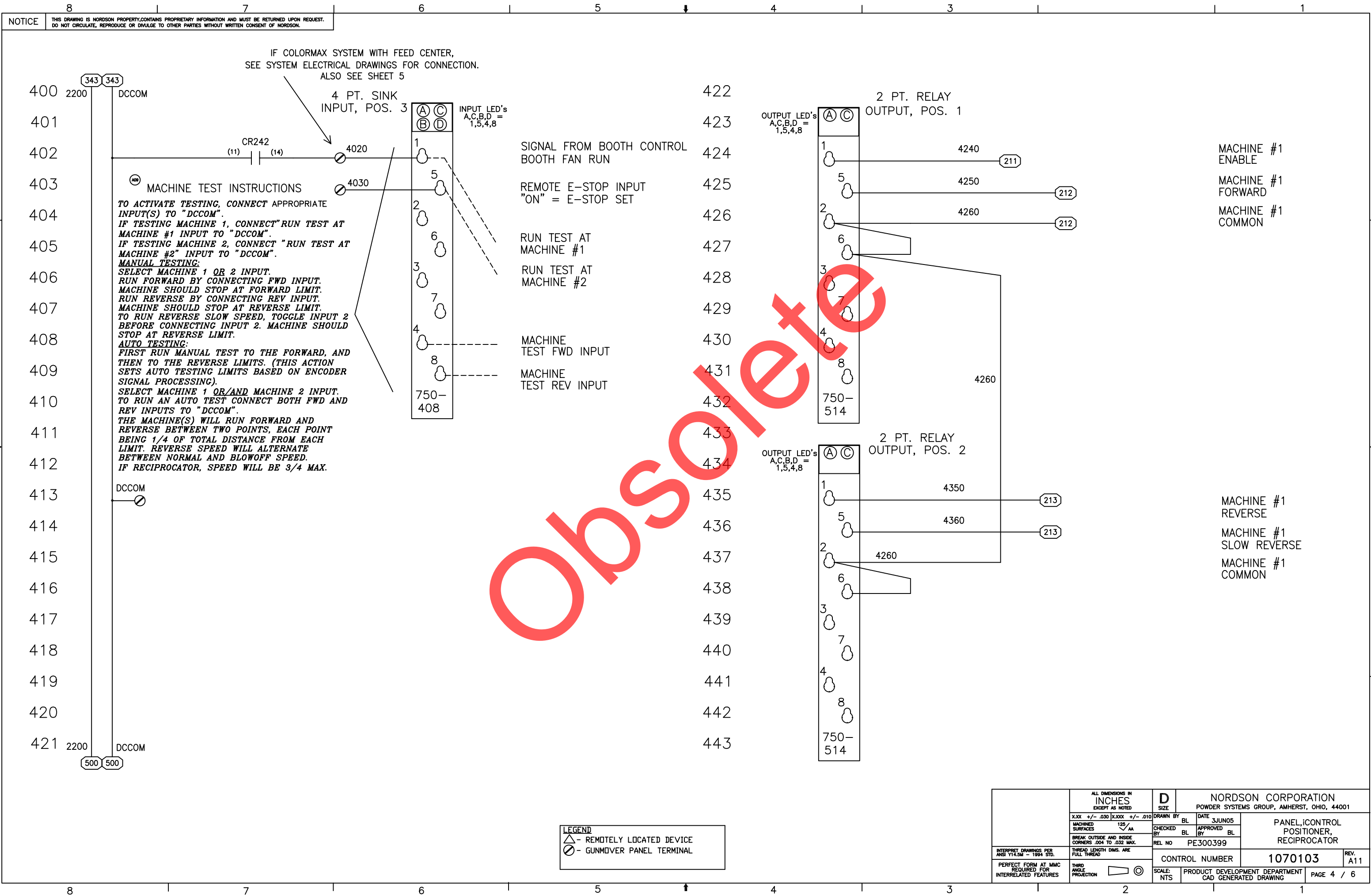
MACHINE #1
FORWARD LIMIT

MACHINE #1
REVERSE LIMIT

MACHINE #1

MACHINE #1
USA COLORMAX,
PURGE LIMIT

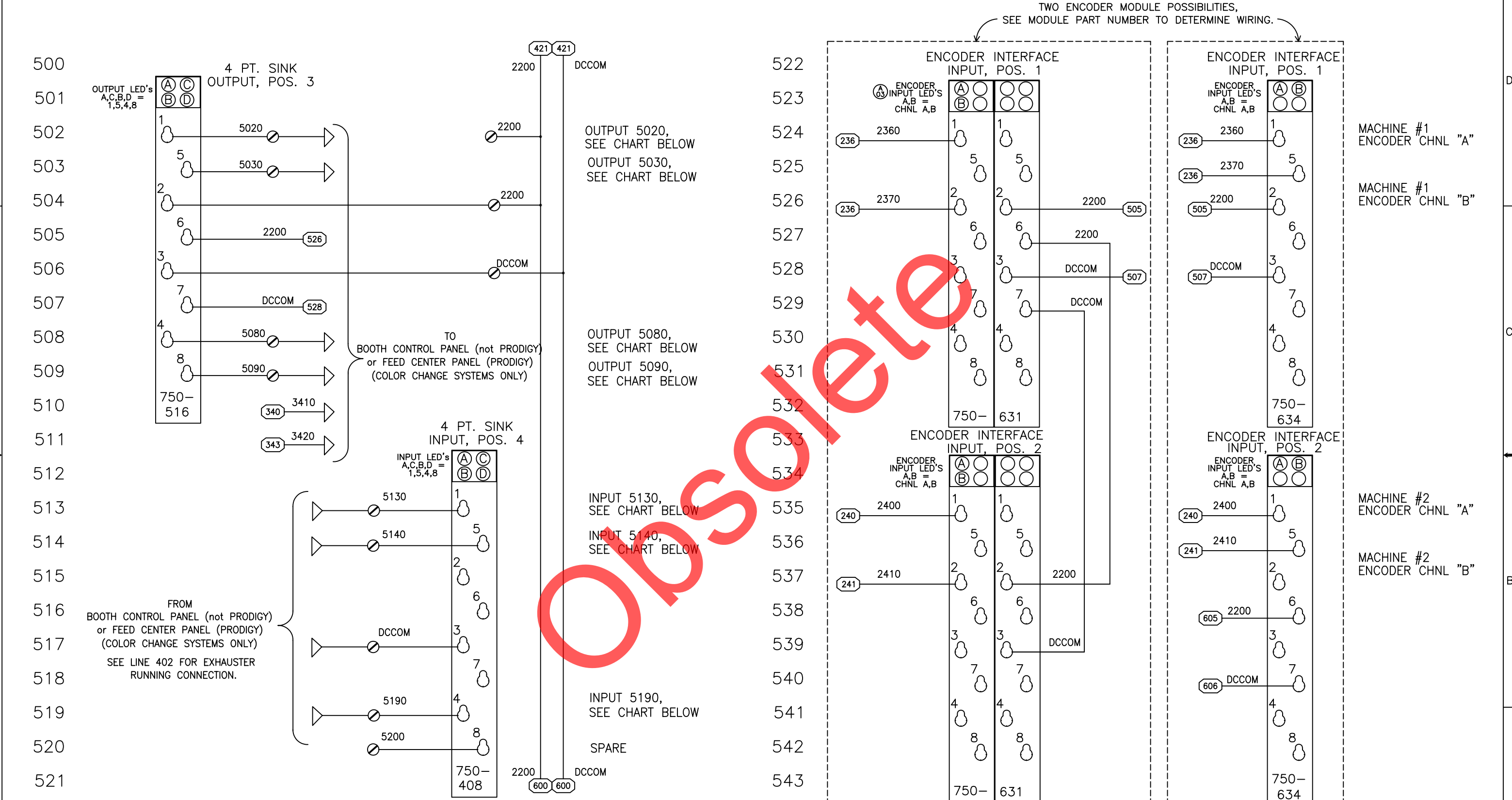
| | | | |
|--------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 X.XXX +/- .010 | DRAWN BY BL | DATE 3JUN05 | PANEL, iCONTROL POSITIONER, RECIPROCTOR |
| MACHINED SURFACES 125 AA | CHECKED BY BL | APPROVED BY BL | REV. A11 |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO PE300399 | CONTROL NUMBER 1070103 | PAGE 3 / 6 |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | | |



MACHINE TEST INSTRUCTIONS
TO ACTIVATE TESTING, CONNECT APPROPRIATE INPUT(S) TO "DCCOM".
IF TESTING MACHINE 1, CONNECT "RUN TEST AT MACHINE #1" INPUT TO "DCCOM".
IF TESTING MACHINE 2, CONNECT "RUN TEST AT MACHINE #2" INPUT TO "DCCOM".
MANUAL TESTING:
SELECT MACHINE 1 OR 2 INPUT.
RUN FORWARD BY CONNECTING FWD INPUT. MACHINE SHOULD STOP AT FORWARD LIMIT.
RUN REVERSE BY CONNECTING REV INPUT. MACHINE SHOULD STOP AT REVERSE LIMIT.
TO RUN REVERSE SLOW SPEED, TOGGLE INPUT 2 BEFORE CONNECTING INPUT 2. MACHINE SHOULD STOP AT REVERSE LIMIT.
AUTO TESTING:
FIRST RUN MANUAL TEST TO THE FORWARD, AND THEN TO THE REVERSE LIMITS. (THIS ACTION SETS AUTO TESTING LIMITS BASED ON ENCODER SIGNAL PROCESSING).
SELECT MACHINE 1 OR/AND MACHINE 2 INPUT. TO RUN AN AUTO TEST CONNECT BOTH FWD AND REV INPUTS TO "DCCOM".
THE MACHINE(S) WILL RUN FORWARD AND REVERSE BETWEEN TWO POINTS, EACH POINT BEING 1/4 OF TOTAL DISTANCE FROM EACH LIMIT. REVERSE SPEED WILL ALTERNATE BETWEEN NORMAL AND BLOWOFF SPEED.
IF RECIPROCATOR, SPEED WILL BE 3/4 MAX.

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN/MOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------|------------------------|---------------------------------------------------------|-------------------------------------------------------------------|----------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 | X.XXX +/- .010 | DRAWN BY | BL | DATE | 3JUN05 |
| MACHINED SURFACES | 125 AA | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE300399 | | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1070103 | REV. A11 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | |
| | | SCALE: NTS | PAGE 4 / 6 | | |



| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-------------------------------------|
| Terminal | I/O | not Prodigy (GM1 & GM2) | Prodigy (GM1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control |
| 5080 | OUTPUT | Ready for Color Change | Spare |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

X.XX +/- .030 | X.XXX +/- .010

MACHINED SURFACES 125 AA

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

THREAD LENGTH DIMS. ARE FULL THREAD

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

D SIZE

DATE 3JUN05

CHECKED BY BL

APPROVED BY BL

REL NO PE300399

CONTROL NUMBER

1070103

REV. A11

NORDSON CORPORATION

POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

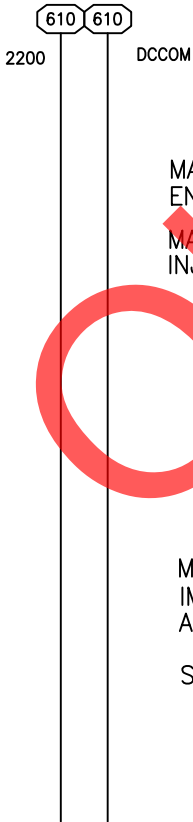
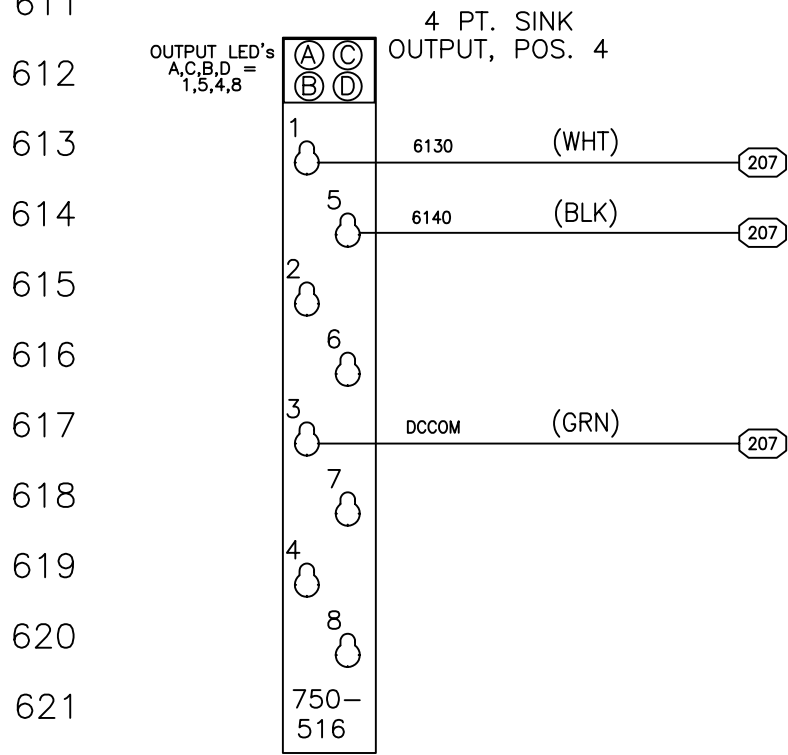
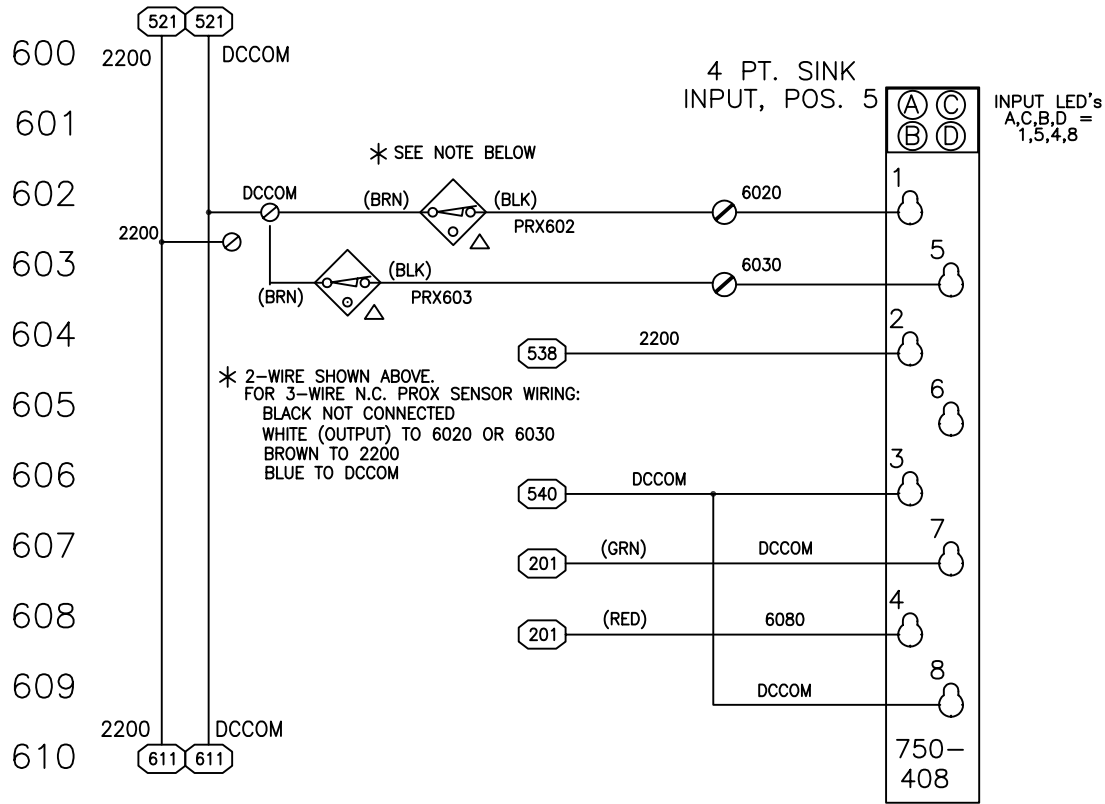
PANEL, iCONTROL POSITIONER, RECIPROCATOR

SCALE: NTS

PRODUCT DEVELOPMENT DEPARTMENT

CAD GENERATED DRAWING

PAGE 5 / 6



MACHINE #2
FORWARD LIMIT

MACHINE #2
REVERSE LIMIT

MACHINE #2
READY

MACHINE #2
RECIPROCATOR MOVEMENT
WARNING/DELAY DISABLE

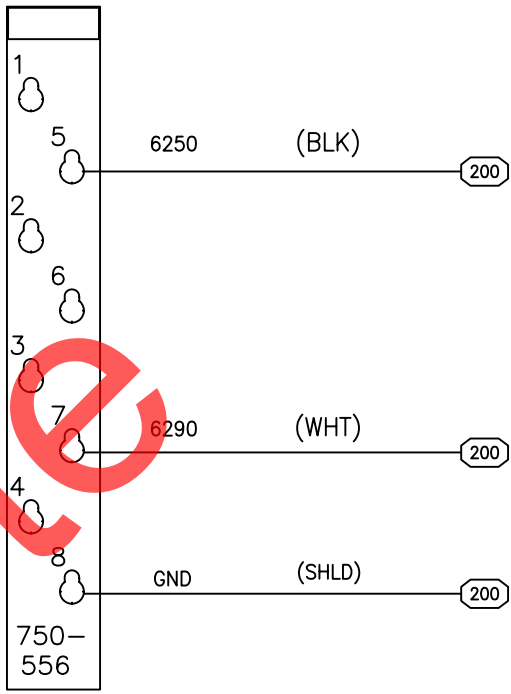
MACHINE #2
ENABLE

MACHINE #2
INJECTION BRAKE

MACHINE #2
IMPENDING MOVEMENT
AUDIBLE WARNING

SPARE

ANALOG OUTPUT
+/- 10 VDC



MACHINE #2
ANALOG OUTPUT (+)

MACHINE #2
ANALOG OUTPUT (-)

NOTE: ANALOG OUTPUT MODULE MUST BE PHYSICALLY POSITIONED AFTER ENCODER MODULE(S).

LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------------|----------------------------------------|----------------|---------------------------------------------------------|-------------------------------------------------------------------|-------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 | X.XXX +/- .010 | DRAWN BY | BL | DATE | 3JUN05 |
| MACHINED SURFACES | 125 AA | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE300399 | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1070103 | REV. A11 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 6 / 6 |

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| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|---------------------|-------------------------------------------------|------|------------------------|------------------|
| 0 | | | REF DWG, ASSY PANEL, GUN POSITIONER | 0 | | 1078407 |
| 101 | | A-1614CH | ENCLOSURE, CONT HINGE, 16x14x6 | 1 | HOFFMAN | 1078420 |
| 102 | | CUSTOM | LABEL SET, GUN POSITIONER | 1 | ----- | 1078684 |
| 103 | | 8002-ISO | TAG, WARNING, ELECT SHOCK HAZARD, 1.00x.88 | 1 | SAFETY LABEL SOLUTIONS | 1075692 |
| 104 | | | LABEL, IDENTIFICATION, 1.00 X 2.00 | 1 | | 1005678 |
| 105 | | 0514500000 | TBACCY, DIN, RAIL, SLOT, 35x2M-LG | .49M | WEIDMULLER, INC | 239214 |
| 106 | | | SCR, HEX, SELF TAP, 10-32X .500, Z | 6 | | 981137 |
| 107 | | A-16P14 | ENCLACCY, PANEL, 14.75x12.88, 14GA | 1 | HOFFMAN | 1078422 |
| 108 | | F1x3LG6 | WIREWAY, 1 X 3 | .17 | PANDUIT | 1046393 |
| 109 | GROUND | PK7GTA | BUSBAR, GND, 100A, 7 POS | 1 | SQUARE D | 1046405 |
| 110 | SC210 | KBMG-212D WITH 8833 | CONTROLLER, DC DRIVE W/ SP BD, GUN PSNR | 1 | KB ELECTRONICS | 1046921 |
| 111 | | | SCR, HEX, SELF TAP, SLTD, 8-32X.50, TYPE T, Z | 4 | | 1083981 |
| 112 | CB207 | 1DU10 | CIRCUIT BREAKER, 1 POLE, 10 AMP, 10-20 xl n | 1 | ALTECH | 1078518 |
| 113 | CB210 | 1CU8 | CIRCUIT BREAKER, 1 POLE, 8 AMP, 5-10 xl n | 1 | ALTECH | 1092954 |
| 114 | PWS219 | SPD24301 | POWER SUPPLY, DIN RAIL, MT, 30W, 24-28VDC | 1 | CARLO GAVAZZ1 | 1080749 |
| 115 | | | MODULE GROUP, I/O, WAGO | 1 | WAGO | 1078669 |
| 116 | | C1LG6 | COVER, 1 | 1FT | PANDUIT | 1046394 |
| 117 | FU217 | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4 X 1-1/4" FUSES | 1 | ALLEN BRADLEY | 341366 |
| 118 | FU217 | MDL-1-R | FUSE, 2AMP, SLOBL0, 250V, 3AG, 313 | 1 | BUSSMANN | 939016 |
| 119 | FU217 | 1492-N37 | END, PLATE, AB FUSE | 1 | ALLEN BRADLEY | 341367 |
| 120 | | 1492-J4 | TERMINAL BLK, GRAY, IEC, 22-10 AWG, JG4 | 30 | ALLEN BRADLEY | 1075583 |
| 121 | | 1492-EAJ35 | ANCHOR, END | 2 | ALLEN BRADLEY | 306318 |
| 122 | CR242 | 700-HLT1U1 | RELAY, TERM BLK, SPDT, 110/125V AC/DC | 1 | ALLEN BRADLEY | 1071600 |
| 123 | | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, IEC, 22-10 AWG, JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 124 | | 1492-J4-Y | TERMINAL BLK, YELLOW, IEC, 22-10 AWG, JG4 | 2 | ALLEN BRADLEY | 1075694 |
| 125 | | 1492-EBJ3 | BARRIER, TBACCY, END, DIN, GRAY, J SERIES | 2 | ALLEN BRADLEY | 1075584 |
| 126 | | | WIRE, 105C, 18GA, BLUE, 600V | 31.5 | | 335174 |
| 127 | | | STRNDWIRE, 14 AWG, YEL, 600V, 105C | 3 | | 1079956 |
| 128 | | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 4.75 | | 931191 |
| 129 | | | WIRE, VINYL, 14AWG, RED | 7.5 | | 931296 |
| 130 | | | WIRE, VINYL, 14AWG, WHITE | 3 | | 931268 |
| 131 | | | WIRE, VINYL, 18AWG, RED | 9 | | 931170 |
| 132 | | | STRAP, CABLE, .875 DIA | 7 | | 939110 |
| 133 | PATCH CABLE | UTPCH2 | CABLE, RJ45 TO RJ45, 2FT | 1 | PANDUIT | 282960 |
| 134 | | | PREFIX RESERVED | 1 | | 000000 |
| 135 | | | PREFIX RESERVED | 1 | | 000000 |
| 136 | | | TERMINAL, RINGTONG, INS, 16-14, 10 | 1 | | 933054 |
| 137 | | | NUT, HEX, MACH, #10-32, BRASS | 2 | | 984129 |
| 138 | | | WASHER, LK, E, SPT, #10, STL, NI | 1 | | 983120 |
| 139 | | | WASHER, FLT, E, 203X.406X.040, BR | 1 | | 983021 |
| 140 | | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | ALLEN BRADLEY | 1078531 |
| 141 | | | QUICKCONN, INS, FEM, .250" X .032", 14-16AWG | 4 | | 1049966 |
| 142 | | | TERMINAL, FLG, SPADE, INS, 16-14, 6 | 1 | | 933184 |
| 143 | | | LABEL SET, PANEL WIRING FOR 1055889 | 1 | | 1079873 |
| 144 | | | WASHER, LK, E, INT, #10, STL, ZN | 4 | | 983124 |
| 145 | | | LABEL, BLANK, 3.00X5.00 | 1 | | 603348 |
| 146 | | | MOUNT, CABLE STRAP | 4 | | 242837 |
| 147 | | | CONTROLLER, PROGRAMMED, GUN POS'R ICONTROL | 1 | | 1055963 |
| 148 | | BPF-7/8 | CAP, FLUSH, 7/8 DIA | 3 | CAPPLUGS DIVISION | 900809 |
| 149 | | FIT-221-1/8 BLACK | TUBING, HEAT-SHRINK, .125ID | 3 IN | ALPHA WIRE | 931315 |
| 150 | CON211 | 1R3004A20F030 | RECEPTACLE, 3-PIN, FEMALE, 16AWG, 36LG | 1 | BRAD-HARRISON | ----- |
| 151 | CON701 | CKA-03I | BULKHEAD HOUSING | 1 | MENCOM | 7750215 |
| 152 | CON701 | CQF-12 | INSERT, FEMALE, 12 POLE | 1 | MENCOM | ----- |
| 153 | CON701 | CDFA 0.3 | SOCKETS, FEMALE, CRIMP, 28-22AWG | 9 | MENCOM | ----- |
| 154 | | | PREFIX RESERVED | 1 | | 000000 |

★ CUT JUMPER AS NEEDED FOR REQUIRED LENGTHS.

OPTION: PLUG & SPRAY BOOTH B.O.M.

| | DESIGNATION | PART NO. | ITEM | QTY | MFG. | NORDSON PART NO. |
|-----|-------------|-----------|----------------------------------------------|-----|----------|------------------|
| 155 | CON201A | | NUT, LOCK, 1/2 CONDUIT | 1 | | 984526 |
| 156 | CON201A | | SEAL, CONDUIT FITTING, 1/2, BLUE | 1 | | 939122 |
| 157 | CON201A | MIN-5MR-3 | RECEPTACLE, 5 PIN, MALE, 16 AWG, 36 IN LEADS | 1 | MENCOM | 1087623 |
| 158 | CON308 | ENSP1F5 | RECEPTACLE, FEMALE-FEMALE, BULKHEAD, RJ45 | 1 | WOODHEAD | 1091863 |

* ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |

FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

| MULTI SPEED BOARD POT | %CLOCKWISE |
|-----------------------|------------|
| PRE 1 | 50-100% |
| PRE 2 | 50-100% |
| PRE 3 | 00% |
| PRE 4 | N/A |

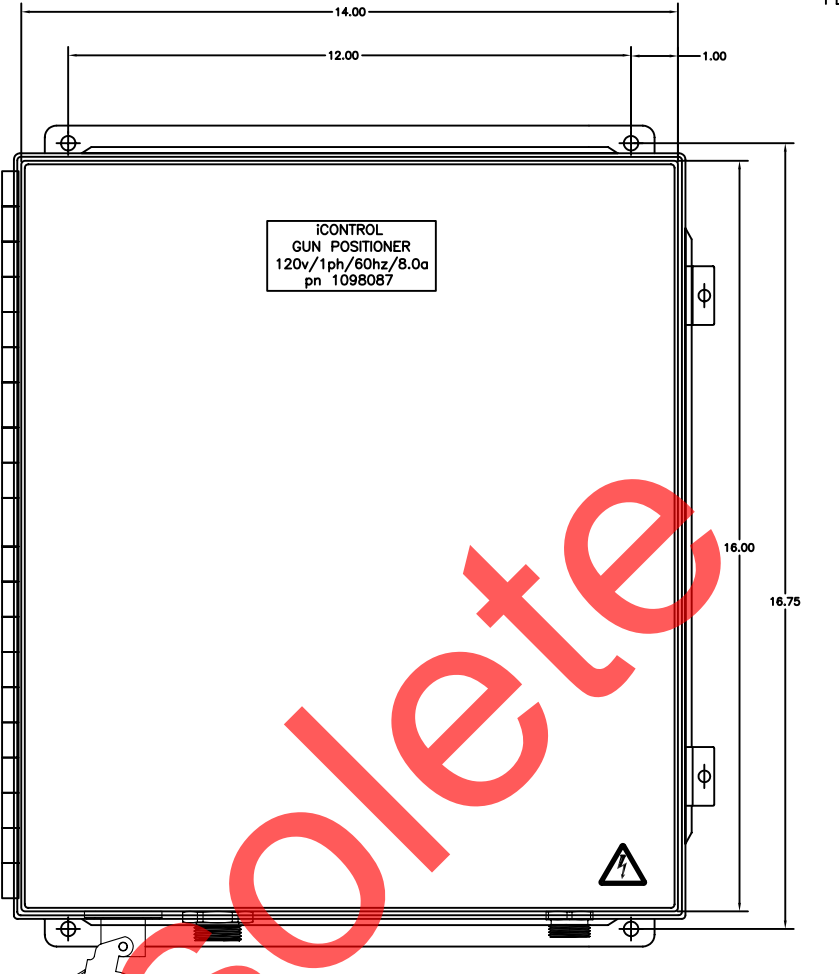
ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |

NOTE:

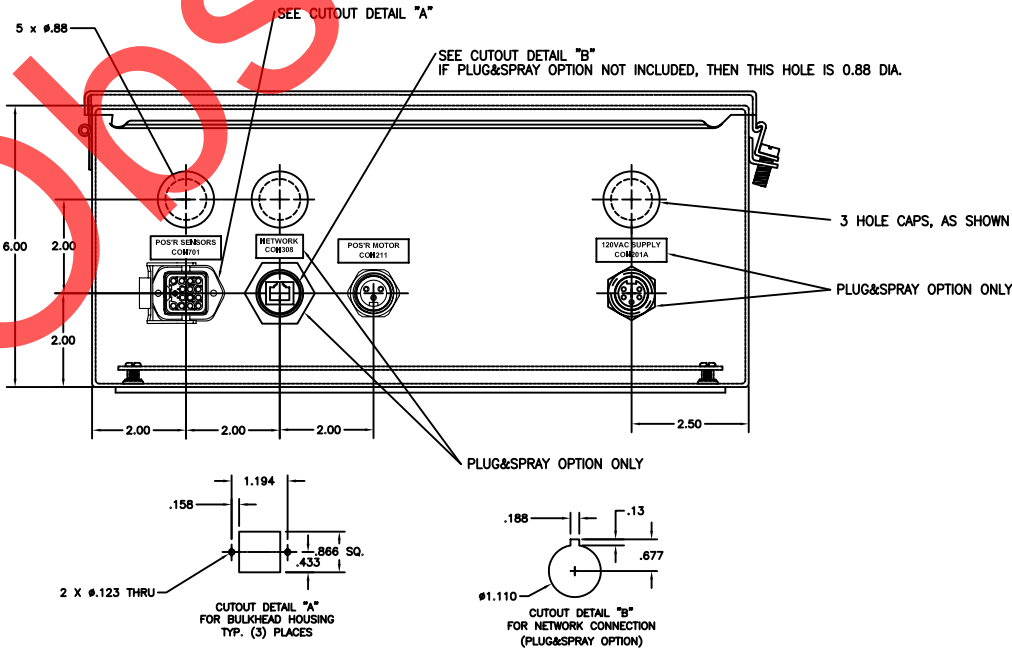
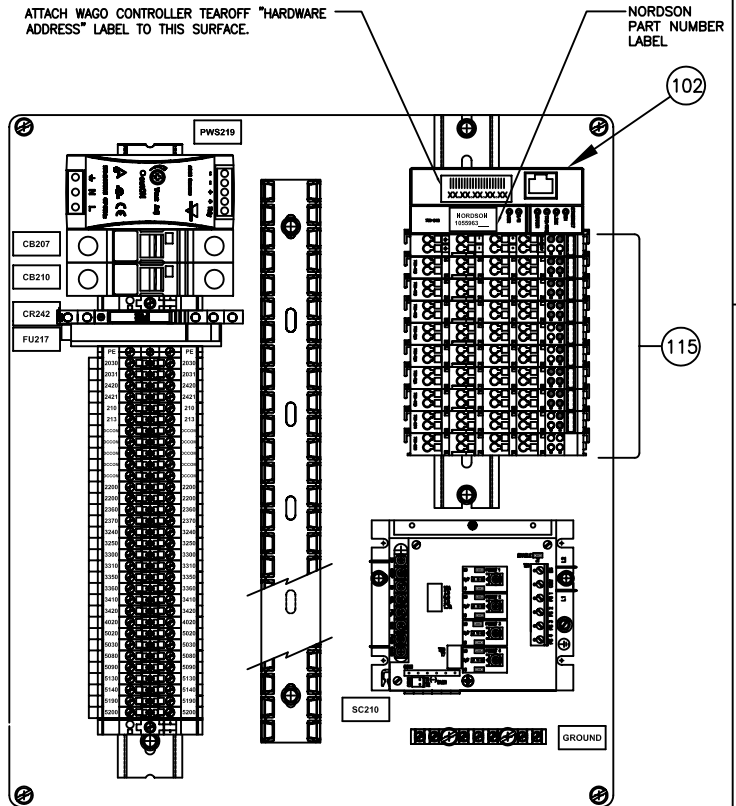
ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.



TERMINAL BLOCK LAYOUT

| PE |
|-------|
| 2030 |
| 2031 |
| 2420 |
| 2421 |
| 210 |
| 213 |
| DCCOM |
| DCCOM |
| DCCOM |
| DCCOM |
| DCCOM |
| 2200 |
| 2200 |
| 2360 |
| 2370 |
| 3240 |
| 3250 |
| 3300 |
| 3310 |
| 3350 |
| 3360 |
| 3410 |
| 3420 |
| 4020 |
| 5020 |
| 5030 |
| 5080 |
| 5090 |
| 5130 |
| 5140 |
| 5190 |
| 5200 |

ATTACH WAGO CONTROLLER TEAROFF "HARDWARE ADDRESS" LABEL TO THIS SURFACE.



DRIVE JUMPER SETTINGS

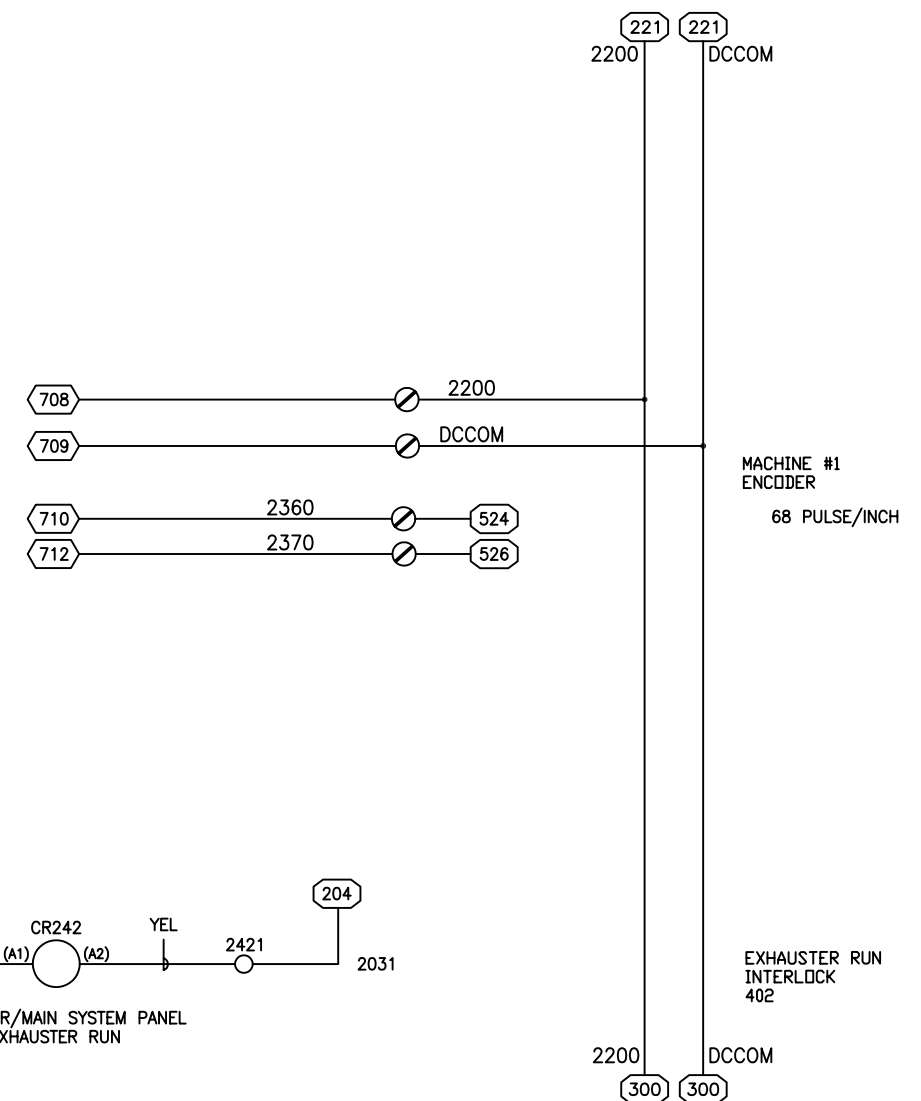
| J1A | J1B | J2 | J3 | J4 | J5 | J6 |
|------|------|-----|-----|-----|-----|-----|
| 115V | 230V | 10A | 7.5 | 5.0 | 2.5 | 1.7 |
| | | CTS | RTS | | | |
| | | | | 10V | 15V | |
| | | | | SPD | TRQ | |


MULTI-SPEED BOARD JUMPER SETTINGS

| PRESET 1 | LO - NO | R/F - F | HI - YES | FORWARD |
|----------|---------|---------|----------|---------|
| PRESET 2 | LO - NO | R/F - R | HI - YES | REVERSE |
| PRESET 3 | LO - NO | R/F - R | HI - YES | BLOWOFF |
| PRESET 4 | N/A | | | |

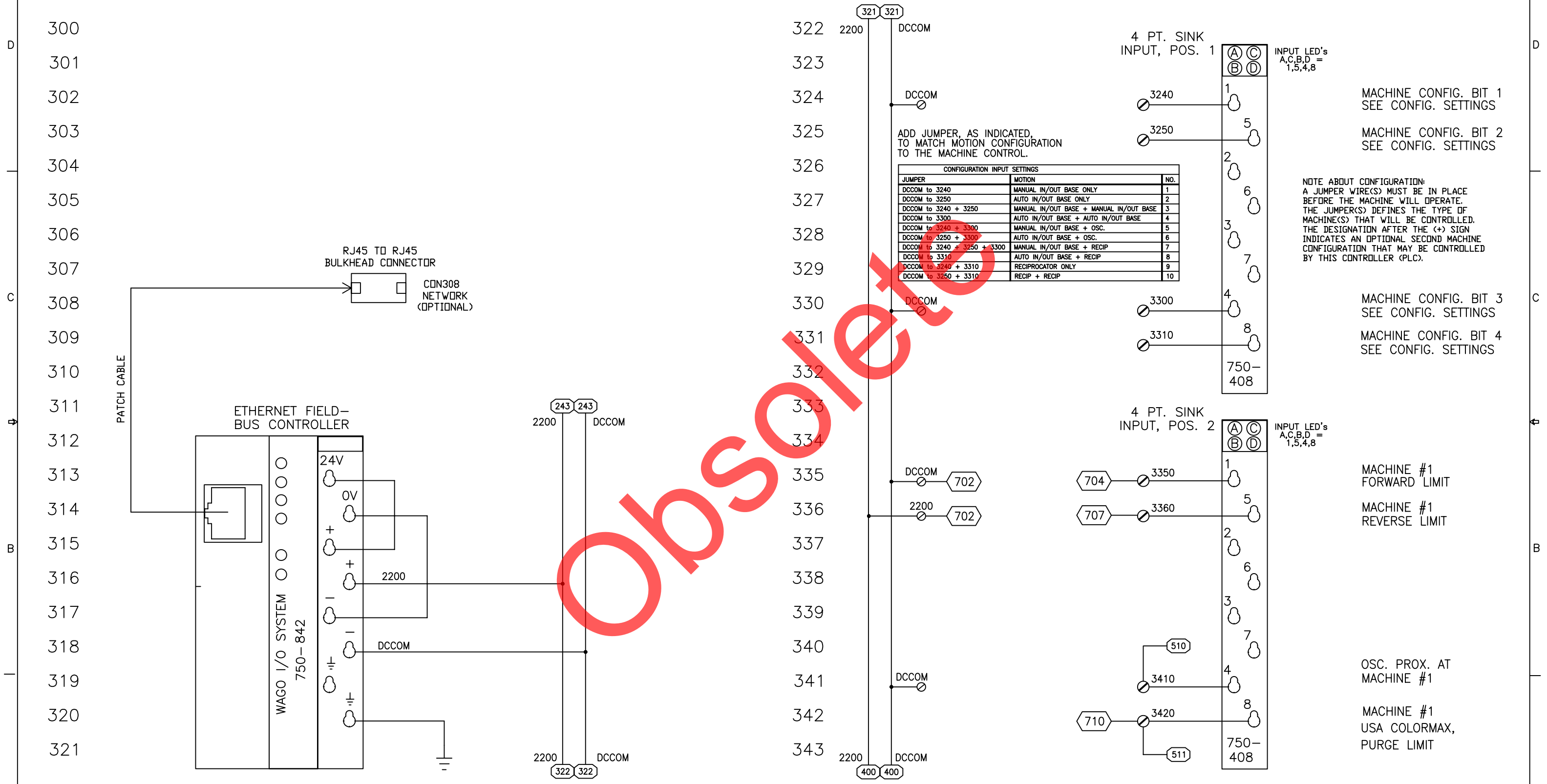
⊗ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

| | | | | | |
|--------------------------------------------------------|--|-----------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY DAK | | DATE 18AUG09 | |
| MACHINED SURFACES | | CHECKED BY BL | | APPROVED BY --- | |
| IN-OUT POSITIONER | | REL NO PE601746 | | CONTROL PANEL, GUN POSITIONER, PLUG-IN, ICONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.3M - 1994 STD. | | CONTROL NUMBER | | 1098087 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| THIRD ANGLE PROJECTION | | | | PAGE 1 / 7 | |



| | | | | | | | |
|--------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------|----------------|-----------|---------------------------------------------------------|-------------------------------------------------------------------|-------------|
| | | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| SEE SHEET 1 | X.XX +/- .030 | X.XX +/- .010 | DRAWN BY | DAK | DATE | CONTROL PANEL, GUN POS. | |
| NEXT ASSEMBLY | MACHINED SURFACES | 125 ° | CHECKED BY | --- | APPROVED BY | PLUG-IN, iCONTROL | |
| FIRST PRODUCE USED ON IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO. | PE601746 | | | |
| INTERPRET DRAWINGS PER AND 114.024 - 1194 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | | | 1098087 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | REV. A01 |
| | |  | PAGE 2 / 7 | | | | |

| | |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOTICE | THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON. |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



| CONFIGURATION INPUT SETTINGS | | |
|------------------------------|-----------------------------------------|-----|
| JUMPER | MOTION | NO. |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCATOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |

```
INPUT LED's
A,C,B,D =
1,5,4,8
```

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE.
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS


```
INPUT LED's
A,C,B,D =
1,5,4,8
```

MACHINE #1
FORWARD LIMIT

MACHINE #1
REVERSE LIMIT

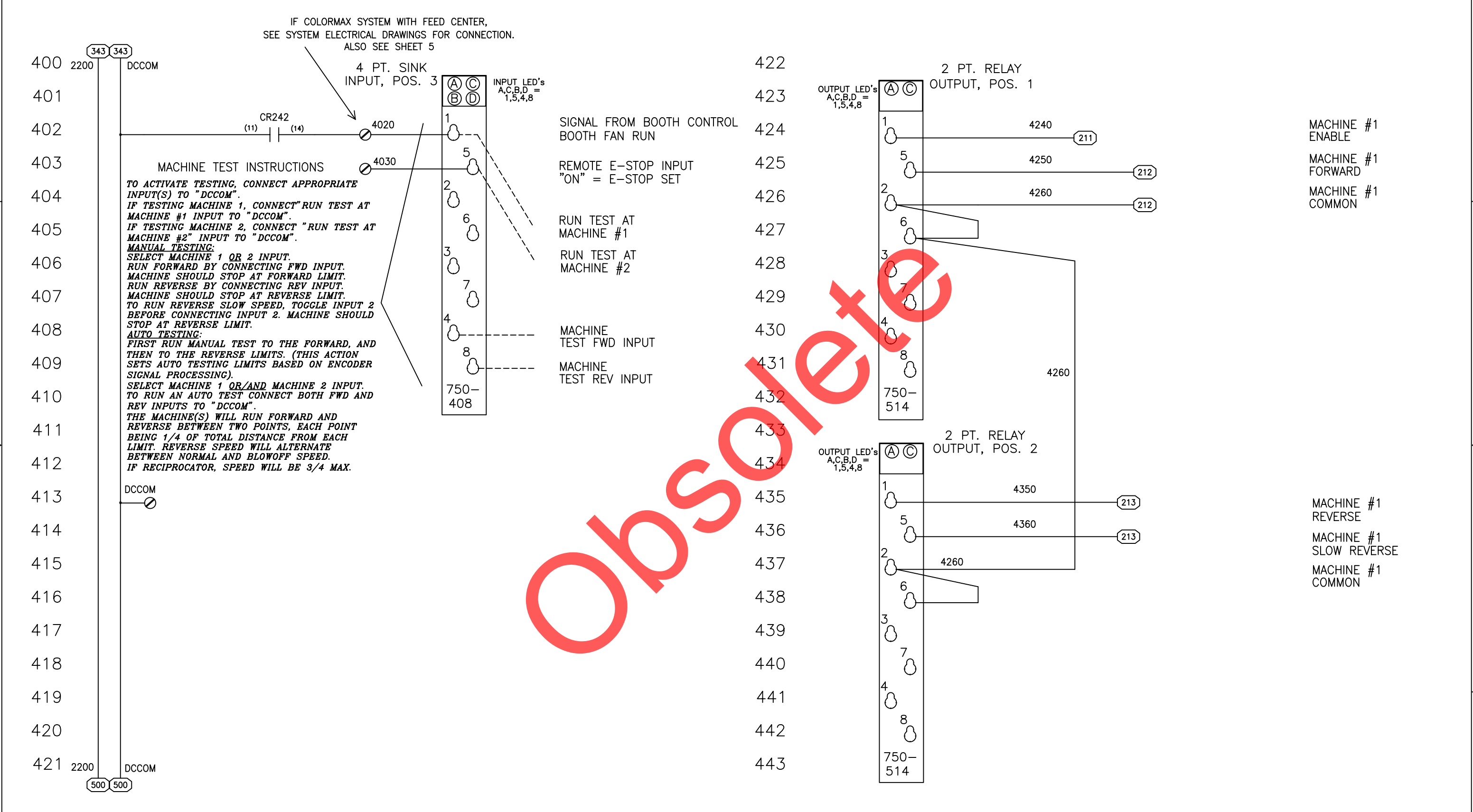
OSC. PROX. AT
MACHINE #1

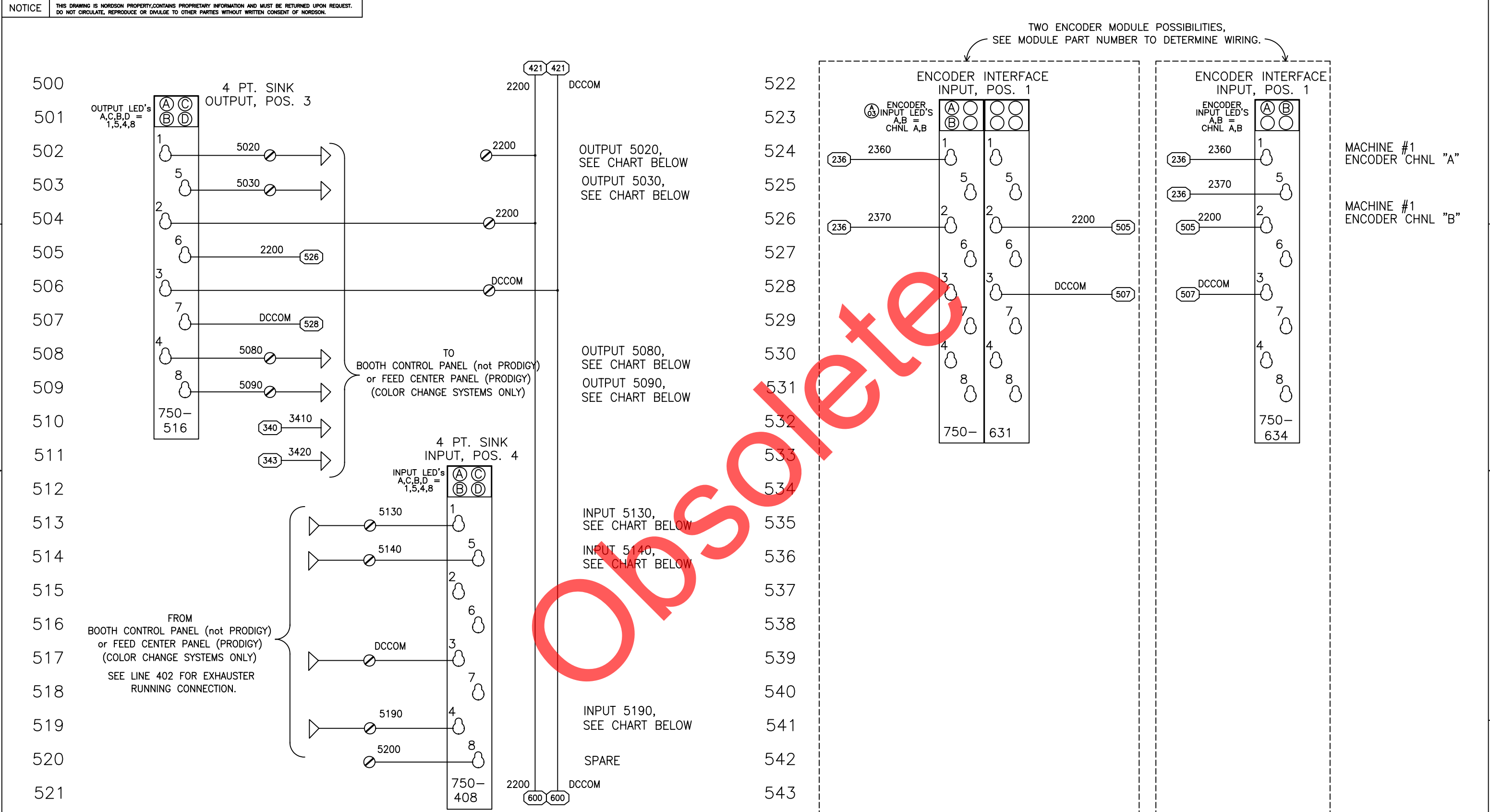
MACHINE #1
USA COLORMAX,
PURGE LIMIT

| | | | | |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------------------------------|--------------------------------------------------------|
| | ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | D | NORDSON CORPORATION | |
| | | SIZE | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| SEE SHEET 1 | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | DATE | 18AUG09 |
| NEXT ASSEMBLY | MACHINED SURFACES 125 AA | CHECKED BY | DAK | CONTROL PANEL, GUN POSITIONER, PLUG-IN, iCONTROL |
| FIRST PRODUCT USED ON | BREAK OUTSIDE AND INSIDE CORNERS JOIN TO .032 X.L | APPROVED BY | | |
| IN-OUT POSITIONER | THREAD LENGTH DIMS. ARE FULL THREAD | REL NO | PE601746 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | CONTROL NUMBER | 1098087 | REV. A01 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION  | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 3 / 7 |

NOTICE

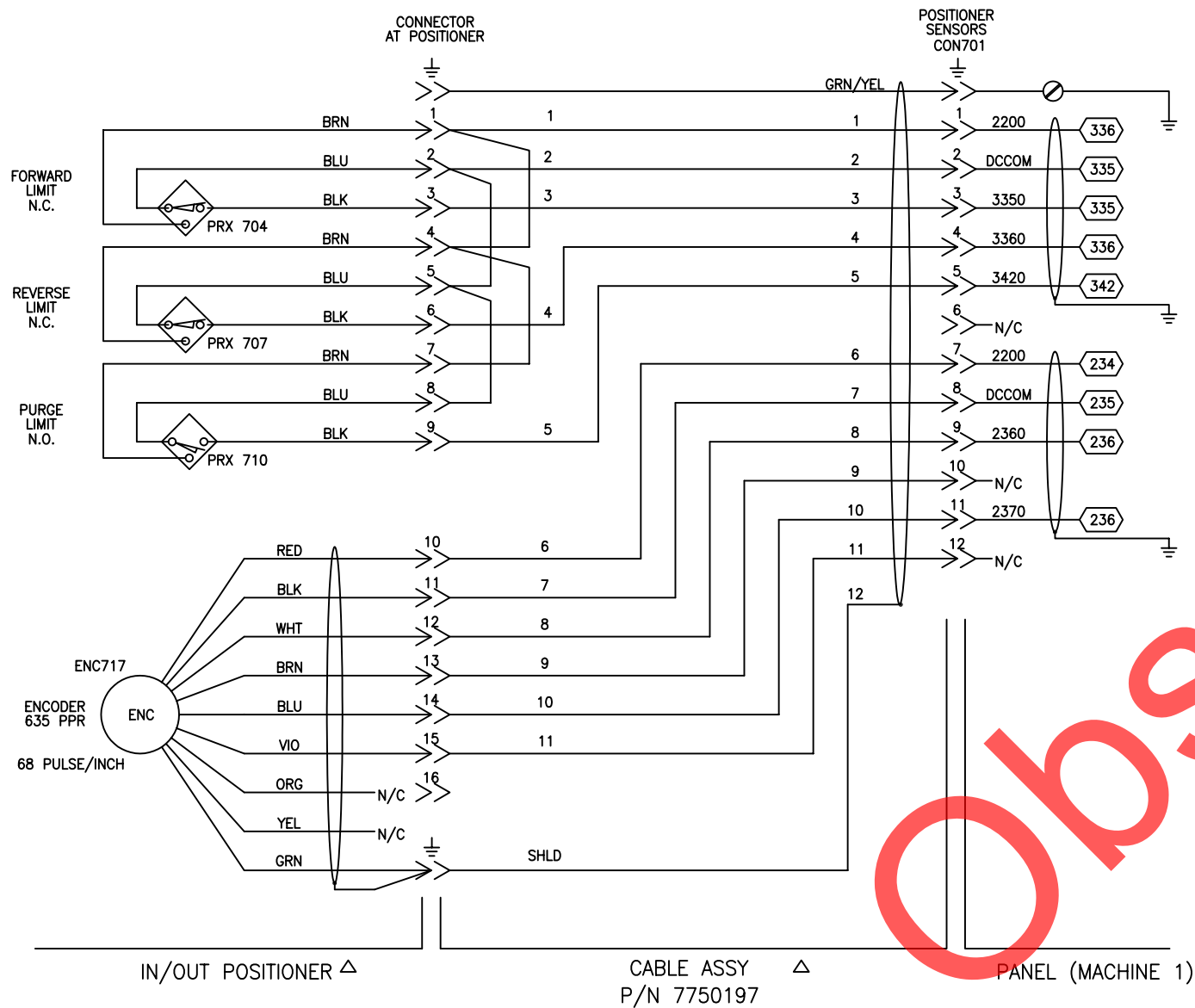
THIS DRAWING IS NORDSON PROPERTY. CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.





| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-------------------------------------|
| Terminal | I/O | not Prodigy (GM1 & GM2) | Prodigy (GM1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control |
| 5080 | OUTPUT | Ready for Color Change | Spare |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

| | | | | | |
|--------------------------------------------------------|--|----------------------------------------------------|--|------------------------------------------------------|--|
| SEE SHEET 1 | | X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY DAK DATE 19AUG09 | |
| NEXT ASSEMBLY | | MACHINED SURFACES 125 AA | | CHECKED BY --- APPROVED BY --- | |
| FIRST PRODUCT USED ON | | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO PE601746 | |
| IN-OUT POSITIONER | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER 1098087 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | REV. A01 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |



LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|--|--------------------------------|----------|--------------------------------------------|----------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D | | NORDSON CORPORATION | |
| | | SIZE | | POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 X.XXX +/- .010 | | DRAWN BY | DAK | DATE | 30JUN09 |
| MACHINED SURFACES 125 AA | | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE601746 | | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1098087 | REV. A01 |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | SCALE: NTS | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | PRODUCT DEVELOPMENT DEPARTMENT | | CAD GENERATED DRAWING | |
| | | | | PAGE 7 / 7 | |

| VENDOR'S BILL OF MATERIAL | | | | |
|---------------------------|-----|-------------------------------------------------------------------|--------------------|------------------|
| DESIGNATION | QTY | ITEM | PART NO. | MFG. |
| | 1 | ENCLOSURE | SEE INVERTER CHART | HOFFMAN |
| | 1 | SUB-PLATE | C-P2424 | HOFFMAN |
| | A/R | DIN RAIL | D5PD2-20 | CUTLER-HAMMER |
| | 4 | END ANCHOR | C383ES35 | CUTLER-HAMMER |
| | 2 | END PLATE | C383AP4 | CUTLER-HAMMER |
| | 46 | TERMINAL BLOCK | C383RK254 | CUTLER-HAMMER |
| | 1 | JUMPER | C383JC402 | CUTLER-HAMMER |
| GND | 1 | GROUND TERMINAL | PK7GTA | SQUARE D |
| | 1 | GROUND LUG | ---- | ---- |
| CB210 | 1 | CIRCUIT BREAKER, 8A | WMS1C8 | CUTLER-HAMMER |
| CB207 | 1 | CIRCUIT BREAKER, 10A | WMS1D10 | CUTLER-HAMMER |
| CB217 | 1 | CIRCUIT BREAKER, 2A | WMS1C2 | CUTLER-HAMMER |
| | A/R | WIRE DUCT, 1" x 3" | --- | --- |
| | 1 | WORKING SPACE CAUTION LABEL SAFETY YELLOW WITH BLACK ENGRAVING | CUSTOM | --- |
| CR242 | 1 | RELAY, 120VAC, SPDT, DIN-RAIL MOUNT | 700-HLT1U1 | ALLEN-BRADLEY |
| MMC203 | 1 | MANUAL MOTOR CONTROLLER | SEE INVERTER CHART | CUTLER-HAMMER |
| PWS219 | 1 | POWER SUPPLY, 30 WATT | PS5R-SC24 | IDEC |
| DISC201 | 1 | DISCONNECT SWITCH | OT18F3 | ABB |
| DISC201 | 1 | HANDLE | OHBS2AJ | ABB |
| DISC201 | 1 | SHAFT | OX56S180 | ABB |
| DISC201 | 1 | ADAPTER, PADLOCK, OPEN PANEL | DS-SA1 | ABB |
| DISC201A | 1 | N.O. AUX. CONTACT, DISCONNECT | QA1G10 | ABB |
| VFD203 | 1 | INVERTER, 3-PH | SEE INVERTER CHART | ALLEN-BRADLEY |
| SC210 | 1 | DC DRIVE | KBMG-212D | KB ELECTRONICS |
| SC210 | 1 | MULTI-SPEED BOARD | 8833 | KB ELECTRONICS |
| CON201C, CON701, CON723 | 3 | BULKHEAD HOUSING | CKA-03I | MENCOM |
| CON701, CON723 | 2 | INSERT, FEMALE, 12 POLE | CQF-12 | MENCOM |
| CON201C | 1 | INSERT, FEMALE, 4 POLE | CKSF-04 | MENCOM |
| CON201C | 1 | ID66/67 SEAL KIT | CKR 65 | MENCOM |
| CON701, CON723 | 17 | SOCKETS, FEMALE, CRIMP, 26-22AWG | CDFA 0.3 | MENCOM |
| CON211 | 1 | RECEPTICLE, 3-PIN, FEMALE, 16AWG, 36LG | 1R3004A20F030 | BRAD-HARRISON |
| | 2 | CAP, FLUSH, 7/8 DIA. | BPF-7/8 | CAPLUGS DIVISION |
| SC205 | 1 | EMI SUPPRESSION CORE, SPLIT HALVES (SC205) | 0443167251 | FAIR-RITE |
| | 1 | PROGRAMMED ETHERNET FIELDBUS CONTROLLER, WAGO 842 | SEE ITEM 02 | NORDSON |
| | 5 | MODULE, INPUT, SINK, 4 PT. | 750-408 | WAGO |
| | 2 | MODULE, OUTPUT, SINK, 4 PT. | 750-516 | WAGO |
| | 2 | MODULE, OUTPUT, RELAY, 2 PT. | 750-514 | WAGO |
| | 2 | MODULE, INTERFACE, ENCODER | 750-631 | WAGO |
| | | MODULE, INTERFACE, ENCODER | 750-634 | WAGO |
| | 1 | MODULE, OUTPUT, ALG., +/- 10VDC | 750-556 | WAGO |
| | 1 | MODULE, END | 750-600 | WAGO |

* - 750-631 AND 750-634 ARE INTERCHANGABLE MODULES, 750-634 REPLACING 750-631.
- MARK THIS ITEM AS "SC205". FOR SHIPMENT, SECURE VIA CLEAR PACKING TAPE TO THE FRONT COVER OF THE INVERTER, ITEM VFD203.

| OPTION: PLUG & SPRAY BOOTH B.O.M. | | | | |
|-----------------------------------|-----|-------------------------------------------|----------------|---------------|
| DESIGNATION | QTY | ITEM | PART NO. | MFG. |
| CON201A | 1 | RECEPTICLE, 5-PIN, MALE, 16AWG, 36LG | 1R5006A20F030 | BRAD-HARRISON |
| CON201B | 1 | RECEPTICLE, 4-PIN, MALE, 14AWG, 36LG | 1R4006A28F030G | BRAD-HARRISON |
| CON308 | 1 | RECEPTACLE, FEMALE-FEMALE, BULKHEAD, RJ45 | ENSP1F5 | BRAD-HARRISON |
| PATCH CABLE | 1 | PATCH CABLE, CAT5e, T568B, ETHERNET, 48" | ---- | ---- |

| INVERTER CHART | | | | |
|----------------|--------------|------------|--------------|--------------|
| 3-PH VOLTS | 208 | 230 | 380 | 575 |
| CONTROLLER | XTPB010BC1 | XTPB6P3BC1 | XTPB004BC1 | XTPB2P5BC1 |
| INVERTER | 22B-B8P0N104 | | 22B-D4P0N104 | 22B-E3P0N104 |
| ENCLOSURE | C-SD24248 | | | |

WORK SPACE CAUTION LABEL
SAFETY YELLOW WITH BLACK ENGRAVING

APPROX. 4.5"

0.5 INCH TEXT

0.25 INCH TEXT

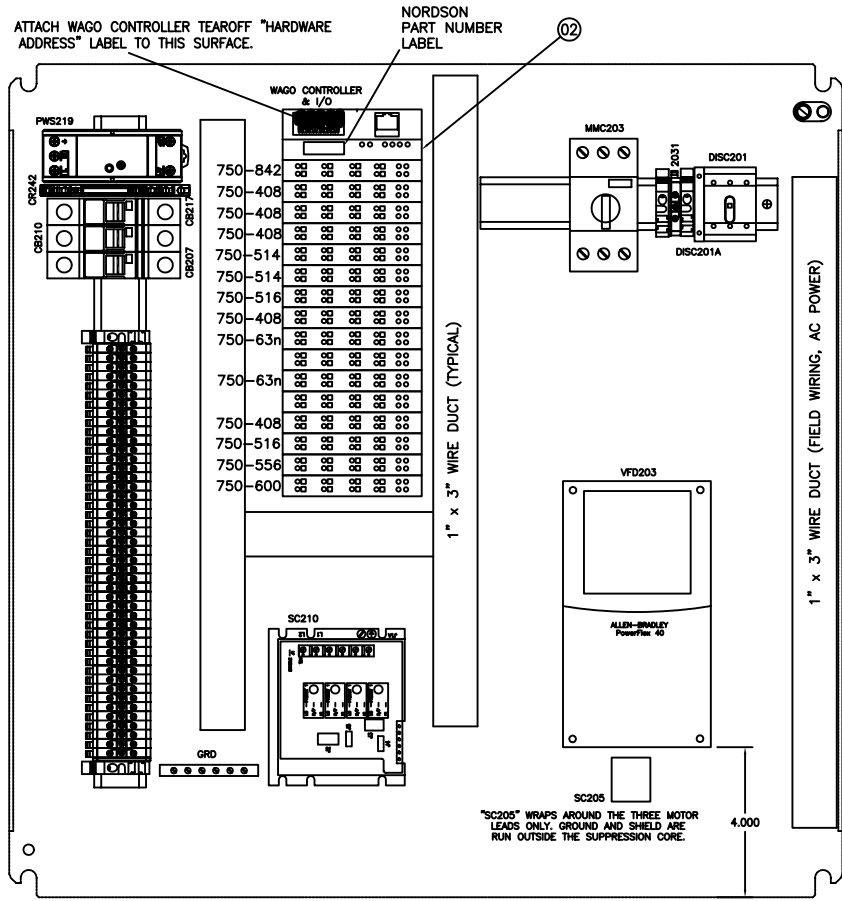
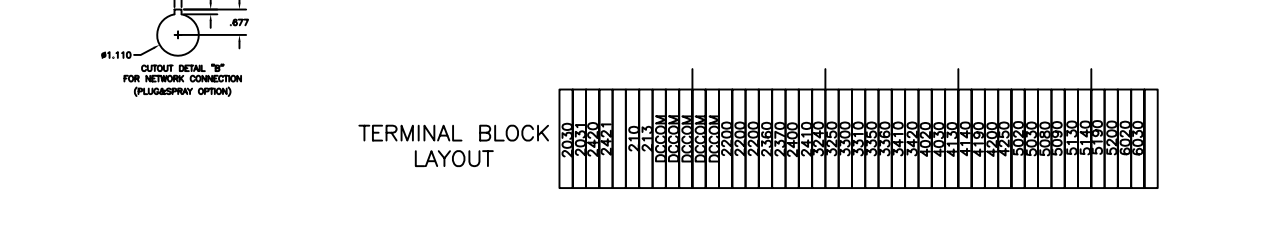
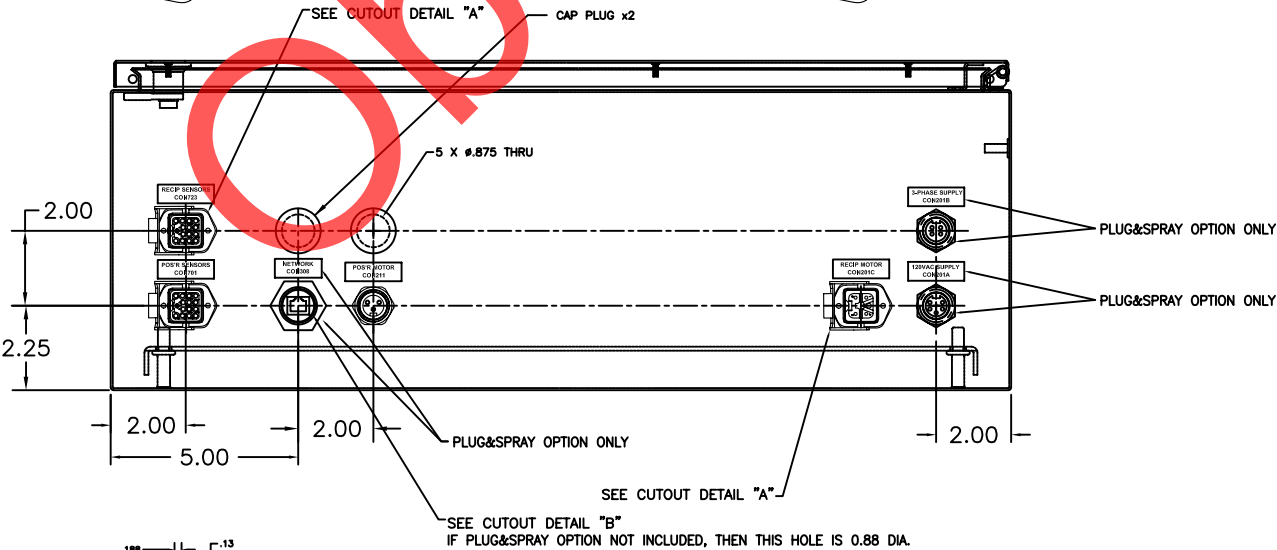
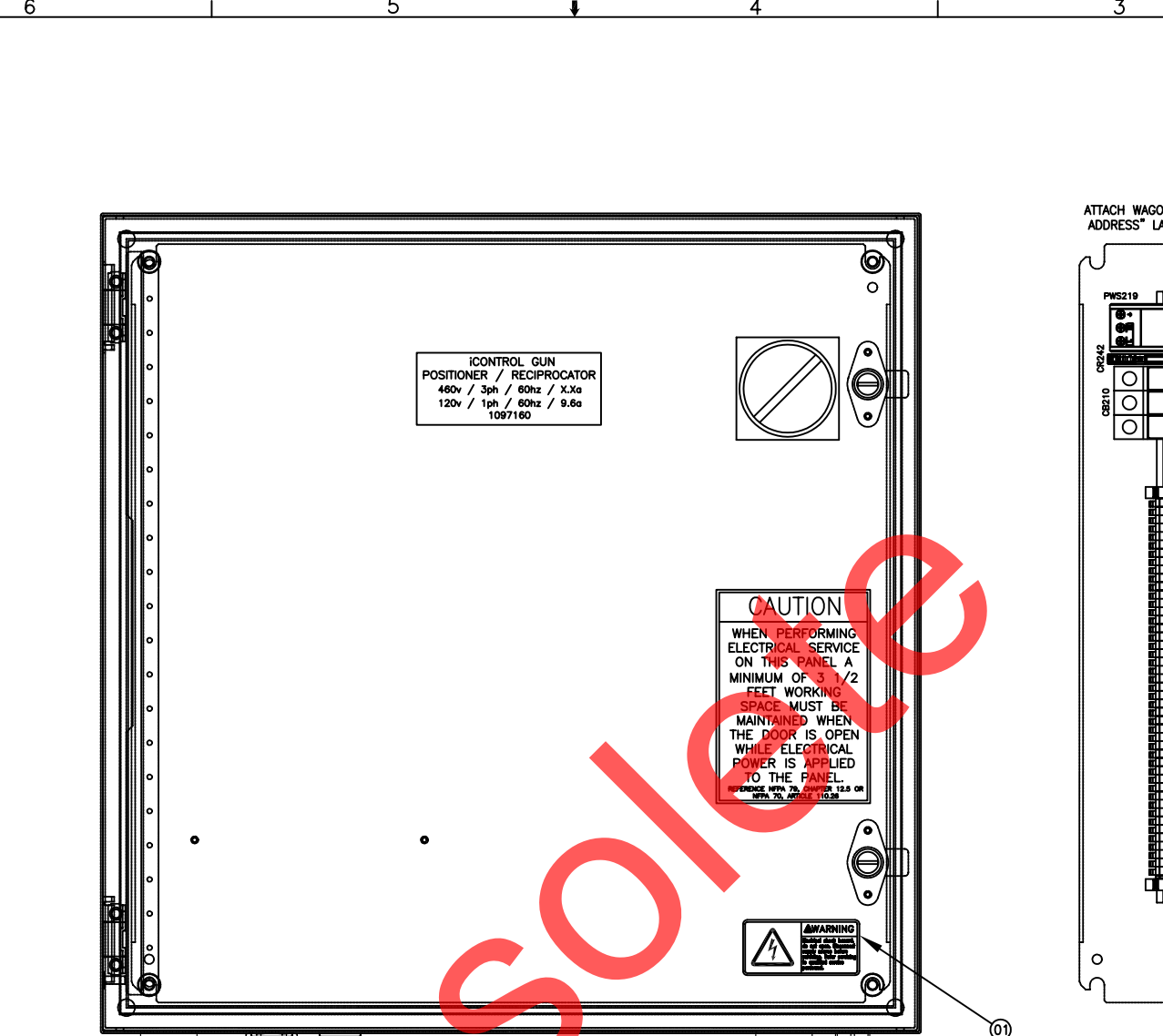
0.0125 INCH TEXT

APPROX. 6.25"

CAUTION

WHEN PERFORMING ELECTRICAL SERVICE ON THIS PANEL A MINIMUM OF 3 1/2 FEET WORKING SPACE MUST BE MAINTAINED WHEN THE DOOR IS OPEN WHILE ELECTRICAL POWER IS APPLIED TO THE PANEL.

REFERENCE NFPA 79, CHAPTER 12.5 OR NFPA 70, ARTICLE 110.26



FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

MAINBOARD POT

| POT | % C.W. |
|------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCI | 75% |
| RCL | 100% |
| MAX | 0% |
| FACC | 0% |
| SACC | 0% |

DRIVE JUMPER SETTINGS

| J1A | J1B | J2 | J3 | J4 | J5 | J6 |
|-----|-----|-----|-----|-----|----|----|
| 10A | 150 | 10V | SPD | THO | | |
| 7.5 | 17 | 10V | | | | |
| 5.0 | | | | | | |
| 2.5 | | | | | | |
| 1.7 | | | | | | |

FACTORY SETTINGS

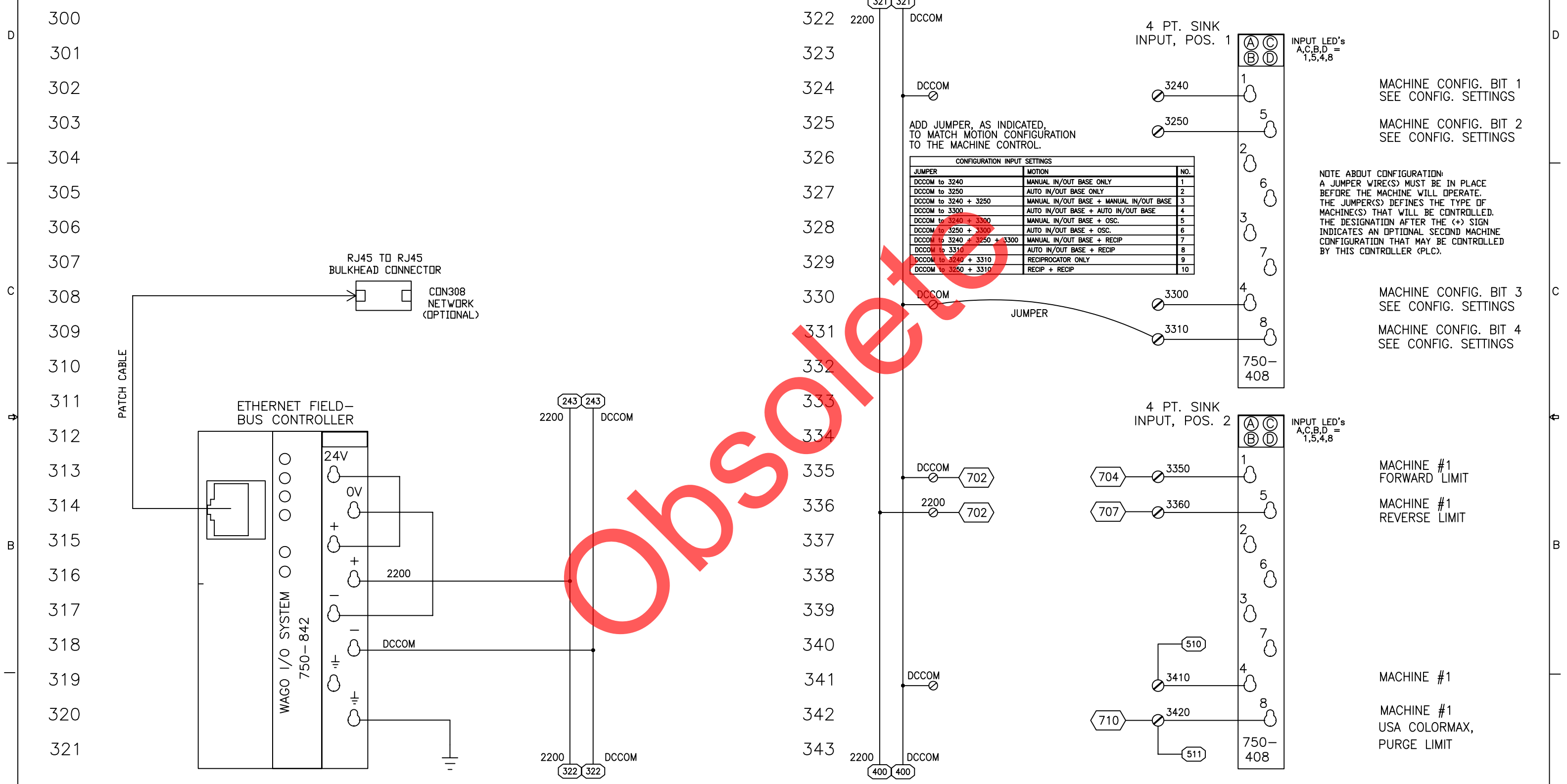
| PRESET 1 | PRESET 2 | PRESET 3 | PRESET 4 |
|----------|----------|----------|----------|
| LO - NO | LO - NO | LO - NO | N/A |
| R/F - F | R/F - R | R/F - R | |
| HI - YES | HI - YES | HI - YES | |

JUMPER POSITIONS

| J1 | J1A | J1B | J2 | J3 | J4 | J5 | J6 |
|----|------|------|-----|-----|-----|-----|-----|
| NO | 115V | 115V | 5.0 | A90 | 15V | SPD | CTS |

● HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

| ITEM | ICT | PART NO. | DESCRIPTION | QTY. |
|-------------------------------------------------------------------|-----|----------|------------------------------------------------|------|
| 02 | L | 1055963 | CONTROLLER, PROGRAMMED, GUN POS'R iCONTROL | 1 |
| 01 | L | 226709 | LABEL, WARNING, CONTROL PANEL | 1 |
| NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | | |
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | | CONTROL PANEL, PSNR & RECIP. PLUG-IN, iCONTROL | |
| X.XX +/- .030 X.XXX +/- .010 | | | CONTROL NUMBER 1097160 | |
| MACHINED SURFACES 125 AA | | | REV. A01 | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | | SCALE: NTS | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | | PRODUCT DEVELOPMENT DEPARTMENT | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | | CAD GENERATED DRAWING | |
| THIRD ANGLE PROJECTION | | | PAGE 1 / 7 | |



| CONFIGURATION INPUT SETTINGS | | NO. |
|------------------------------|-----------------------------------------|-----|
| JUMPER | MOTION | |
| DCCOM to 3240 | MANUAL IN/OUT BASE ONLY | 1 |
| DCCOM to 3250 | AUTO IN/OUT BASE ONLY | 2 |
| DCCOM to 3240 + 3250 | MANUAL IN/OUT BASE + MANUAL IN/OUT BASE | 3 |
| DCCOM to 3300 | AUTO IN/OUT BASE + AUTO IN/OUT BASE | 4 |
| DCCOM to 3240 + 3300 | MANUAL IN/OUT BASE + OSC. | 5 |
| DCCOM to 3250 + 3300 | AUTO IN/OUT BASE + OSC. | 6 |
| DCCOM to 3240 + 3250 + 3300 | MANUAL IN/OUT BASE + RECIP | 7 |
| DCCOM to 3310 | AUTO IN/OUT BASE + RECIP | 8 |
| DCCOM to 3240 + 3310 | RECIPROCATOR ONLY | 9 |
| DCCOM to 3250 + 3310 | RECIP + RECIP | 10 |

```
INPUT LED's
A,C,B,D =
1,5,4,8
```

MACHINE CONFIG. BIT 1
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 2
SEE CONFIG. SETTINGS

NOTE ABOUT CONFIGURATION:
A JUMPER WIRE(S) MUST BE IN PLACE
BEFORE THE MACHINE WILL OPERATE.
THE JUMPER(S) DEFINES THE TYPE OF
MACHINE(S) THAT WILL BE CONTROLLED.
THE DESIGNATION AFTER THE (+) SIGN
INDICATES AN OPTIONAL SECOND MACHINE
CONFIGURATION THAT MAY BE CONTROLLED
BY THIS CONTROLLER (PLC).

MACHINE CONFIG. BIT 3
SEE CONFIG. SETTINGS

MACHINE CONFIG. BIT 4
SEE CONFIG. SETTINGS

INPUT LED's
A,C,B,D =
1,5,4,8

MACHINE #1
FORWARD LIMIT

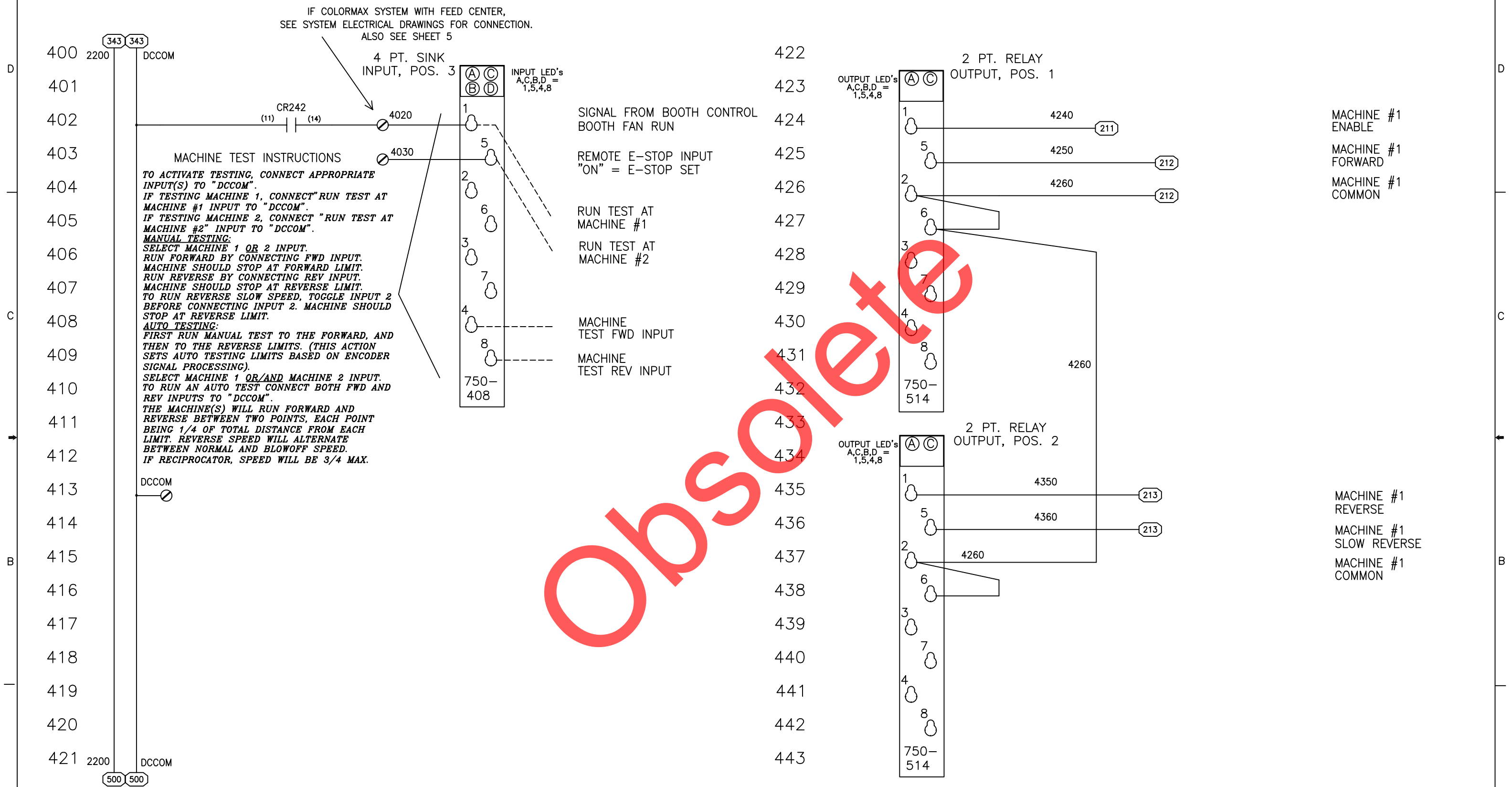
MACHINE #1
REVERSE LIMIT

MACHINE #1

MACHINE #1
USA COLORMAX,
PURGE LIMIT

| | | | | | |
|--------------------------------------------------------------|--|------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | DRAWN BY BL | | DATE 3JUN05 | |
| X.XXX +/- .030 X.XXXX +/- .010 | | CHECKED BY BL | | APPROVED BY BL | |
| MACHINED SURFACES 125 ✓ | | REL NO PE601746 | | CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL | |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .002 MAX. | | CONTROL NUMBER 1097160 | | | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | | | | |
| INTERPRET DRAWINGS PER ANSI Y14.3M - 1994 STD. | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | REV. A01 | |
| | | | | PAGE 3 / 7 | |

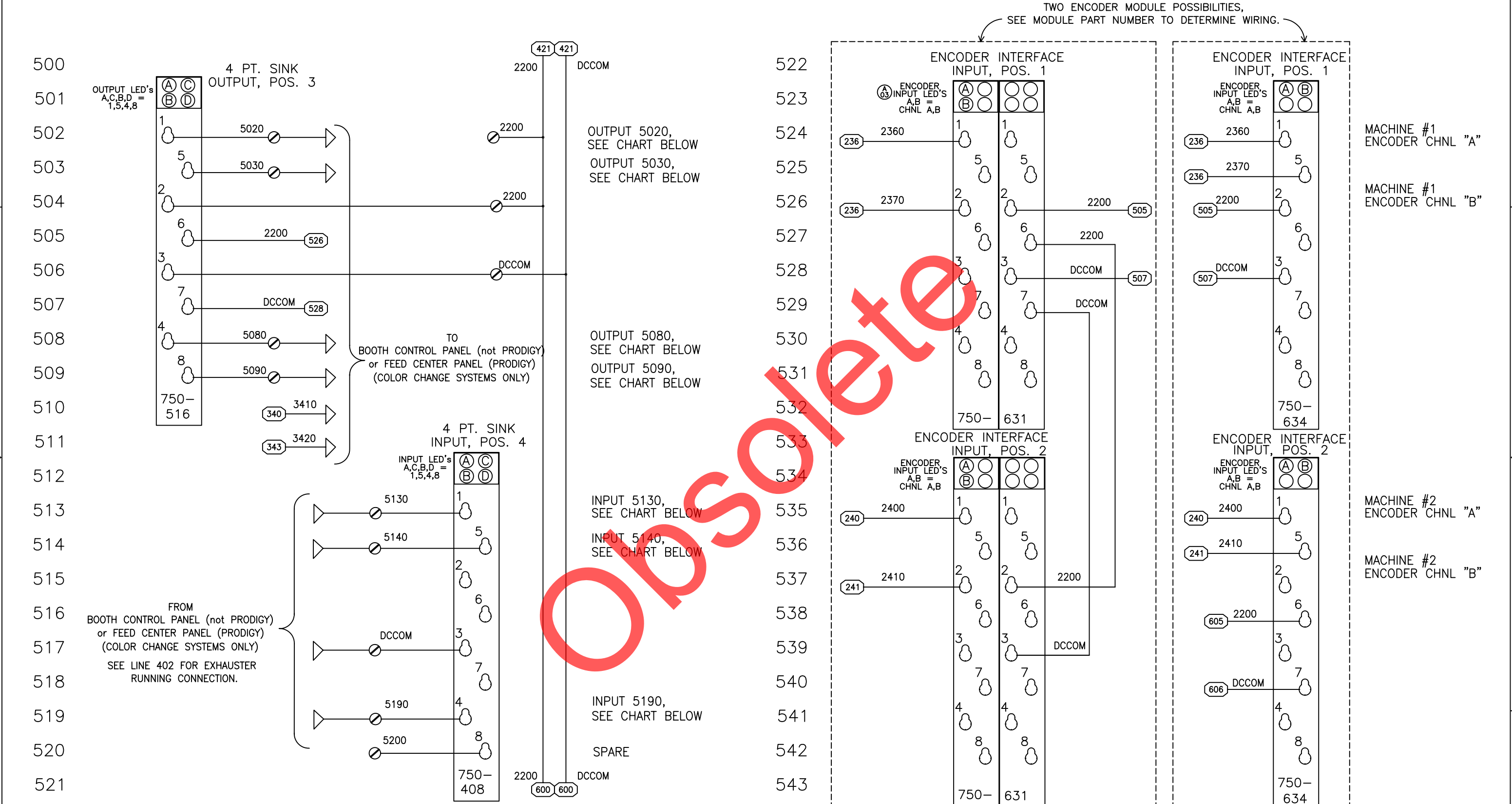
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LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------------|--|------------------------------|----|-------------------------------------------------------------------|--------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | DRAWN BY | BL | DATE | 3JUN05 |
| MACHINED SURFACES | | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | | PE601746 | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1097160 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | REV. A01 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 4 / 7 | |

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| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-------------------------------------|
| Terminal | I/O | not Prodigy (GM1 & GM2) | Prodigy (GM1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control |
| 5080 | OUTPUT | Ready for Color Change | Spare |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

X.XX +/- .030 | X.XXX +/- .010

MACHINED SURFACES 125 AA

BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.

THREAD LENGTH DIMS. ARE FULL THREAD

THIRD ANGLE PROJECTION

INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.

PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

D SIZE

NORDSON CORPORATION

POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

DATE 3JUN05

CONTROL PANEL, PSNR & RECIP, PLUG-IN, iCONTROL

REL NO PE601746

CONTROL NUMBER 1097160

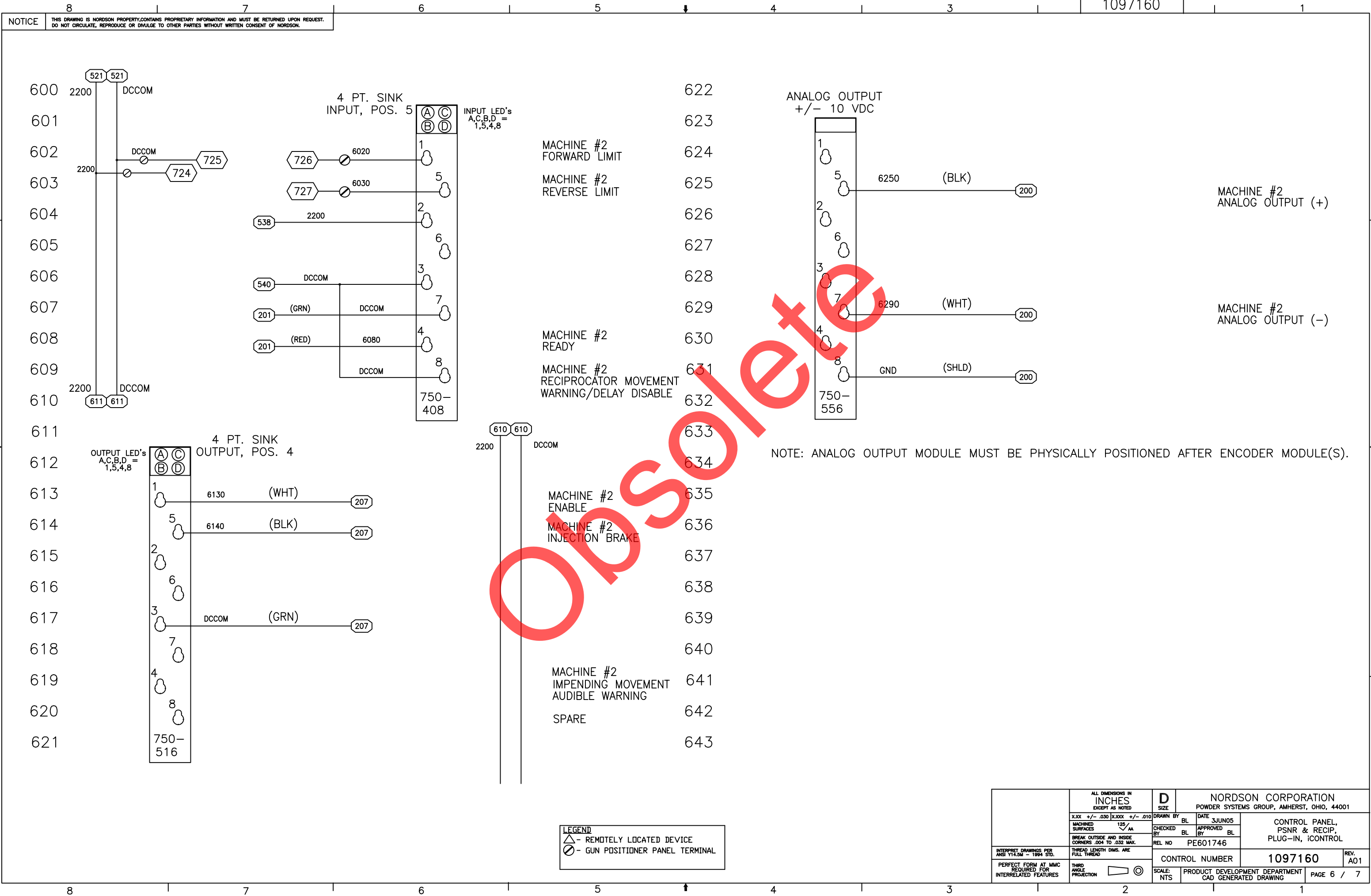
REV. A01

SCALE: NTS

PRODUCT DEVELOPMENT DEPARTMENT

CAD GENERATED DRAWING

PAGE 5 / 7



NOTICE THIS DRAWING IS NORDSON PROPERTY. CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

D

D

C

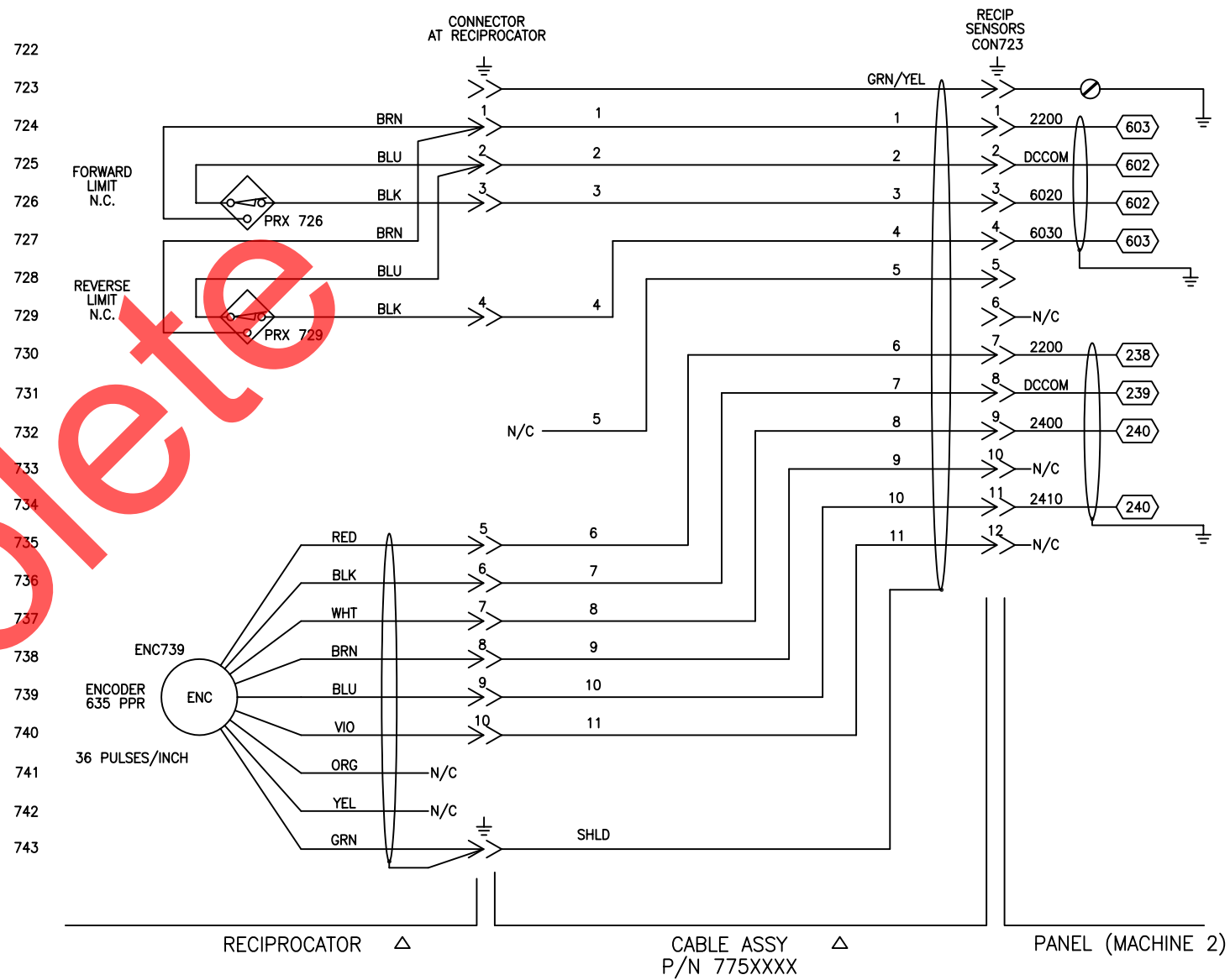
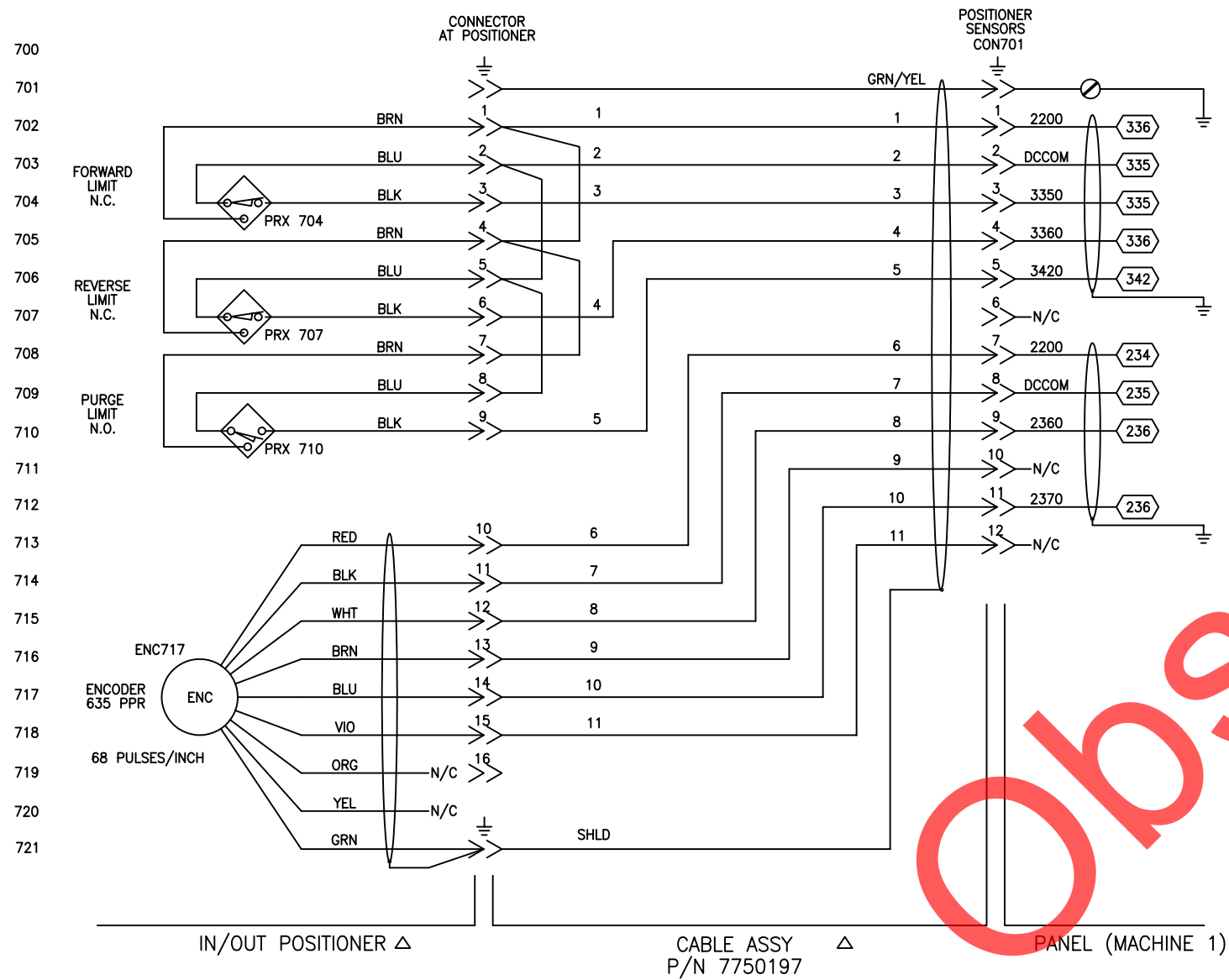
C

B

B

A

A



LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN POSITIONER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------|----------------|---------------------------------------------------------|-------------------------------------------------------------------|----------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| X.XX +/- .030 | X.XXX +/- .010 | DRAWN BY | DAK | DATE | 30JUN09 |
| MACHINED SURFACES | 125 AA | CHECKED BY | BL | APPROVED BY | BL |
| BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | | REL NO | PE601746 | | |
| THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER | | 1097160 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | REV. A01 |
| | | | | PAGE 7 / 7 | |

NOTICE

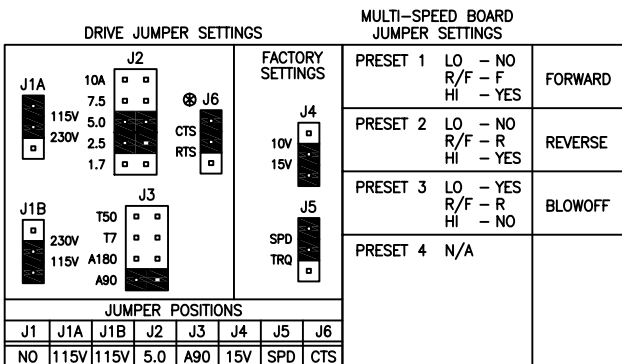
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| ITEM | DESIGNATION | MFG PART NO. | DESCRIPTION | QTY | MFG | NORDSON PART NO. |
|------|-------------|---------------------|-------------------------------------------------|------|------------------------|------------------|
| 0 | | | REF DWG, ASSY PANEL, GUN POSITIONER | 0 | | 1078407 |
| 1 | | A-1614CH | ENCLOSURE, CONT HINGE, 16x14x6 | 1 | HOFFMAN | 1078420 |
| 2 | | CUSTOM | LABEL SET, GUN POSITIONER | 1 | ----- | 1078684 |
| 3 | | 8002-ISO | TAG, WARNING, ELECT SHOCK HAZARD, 1.00x.88 | 1 | SAFETY LABEL SOLUTIONS | 1075692 |
| 4 | | | LABEL IDENTIFICATION, 1.00 X 2.00 | 1 | | 1005678 |
| 5 | | 0514500000 | TBACCY, DIN RAIL, SLOT, 35x2M-LG | .49M | WEIDMULLER, INC | 239214 |
| 6 | | | SCR, HEX, SELF TAP, 10-32X .500, Z | 6 | | 981137 |
| 7 | | A-16P14 | ENCLACCY, PANEL, 14.75x12.88, 14GA | 1 | HOFFMAN | 1078422 |
| 8 | | F1x3LG6 | WIREDUCT, 1 X 3, PVC, GRAY, SLOTTED | 1FT | PANDUIT | 1090158 |
| 9 | GROUND | PK7GTA | GROUND TERMINAL | 1 | SQUARE D | 1046405 |
| 10 | SC210 | KBMG-212D WITH 8833 | CONTROLLER, DC DRIVE W/ SP BD, GUN PSNR | 1 | KB ELECTRONICS | 1046921 |
| 11 | | | SCR, HEX, SELF TAP, SLTD, 8-32X.50, TYPE T, Z | 4 | | 1083981 |
| 12 | CB207 | 1DU10 | CIRCUIT BREAKER, 1 POLE, 10 AMP, 10-20 xl n | 1 | ALTECH | 1078518 |
| 13 | CB210 | 1CU8 | CIRCUIT BREAKER, 1 POLE, 8 AMP | 1 | ALTECH | 1092954 |
| 14 | | PSSR-SD24 | POWER SUPPLY, 60W | 1 | IDEC | 1092955 |
| 15 | | | MODULE GROUP, I/O, WAGO | 1 | WAGO | 1078669 |
| 16 | | C1LG6 | COVER, 1 | 1FT | PANDUIT | 1046394 |
| 17 | FU217 | 1492-H6 | FUSE HOLDER, DIN RAIL, 1/4 X 1-1/4" FUSES | 1 | ALLEN BRADLEY | 341366 |
| 18 | FU217 | MDL-1-R | FUSE, 2AMP, SLOBL0, 250V, 3AG, 313 | 1 | BUSSMANN | 939016 |
| 19 | FU217 | 1492-N37 | END, PLATE, AB FUSE | 1 | ALLEN BRADLEY | 341367 |
| 20 | | 1492-J4 | TERMINAL BLK, GRAY, IEC, 22-10 AWG, JG4 | 30 | ALLEN BRADLEY | 1075583 |
| 21 | | 1492-EAJ35 | ANCHOR, END | 2 | ALLEN BRADLEY | 306318 |
| 22 | CR242 | CR242 | RELAY, TERM BLK, SPDT, 110/125V AC/DC | 1 | ALLEN BRADLEY | 1071600 |
| 23 | | 1492-JG4 | TERMINAL BLK, GND, GRN/YEL, IEC, 22-10 AWG, JG4 | 1 | ALLEN BRADLEY | 1075665 |
| 24 | | 1492-J4-Y | TERMINAL BLK, YELLOW, IEC, 22-10 AWG, JG4 | 2 | ALLEN BRADLEY | 1075694 |
| 25 | | 1492-EBJ3 | BARRIER, TBACCY, END, DIN, GRAY, J SERIES | 2 | ALLEN BRADLEY | 1075584 |
| 26 | | | WIRE, 10SC, 18GA, BLUE, 600V | 31.5 | | 335174 |
| 27 | | | STRND WIRE, 14 AWG, YEL, 600V, 105C | 3 | | 1079956 |
| 28 | | | WIRE, VINYL, 14AWG, GREEN W/YELLOW | 4.75 | | 931191 |
| 29 | | | WIRE, VINYL, 14AWG, RED | 7.5 | | 931296 |
| 30 | | | WIRE, VINYL, 14AWG, WHITE | 3 | | 931268 |
| 31 | | | WIRE, VINYL, 18AWG, RED | 9 | | 931170 |
| 32 | | | STRAP CABLE, .875 DIA | 7 | | 939110 |
| 33 | | UTPCH2 | CABLE, RJ45 TO RJ45, 2FT | 1 | PANDUIT | 282960 |
| 34 | | MX5-F02 | CONNECTOR, ETHERNET, RJ245-TO IDC, CAT5 | 1 | SIEMON | 1058224 |
| 35 | | MX-SM1-02 | BOX, SURFACE MOUNT, ETHERNET | 1 | SIEMON | 1078555 |
| 36 | | | TERMINAL, RINGTONG, INS, 16-14, 10 | 1 | | 933054 |
| 37 | | | NUT, HEX, MACH, #10-32, BRASS | 2 | | 984129 |
| 38 | | | WASHER, LK, E, SPT, #10, STL, NI | 1 | | 983120 |
| 39 | | | WASHER, FLT, E, 203X.406X.040, BR | 1 | | 983021 |
| 40 | | 1492-CJLJ6-10 | JUMPER, TERM BLOCK, 10 POLE, CTR PLUG IN | 1 | ALLEN BRADLEY | 1078531 |
| 41 | | | QUICKCONN, INS, FEM, 250"X.032", 14-16AWG | 4 | | 1049966 |
| 42 | | | TERMINAL, FLG, SPADE, INS, 16-14, 6 | 1 | | 933184 |
| 43 | | | LABEL SET, PANEL WIRING FOR 1055889 | 1 | | 1079873 |
| 44 | | | WASHER, LK, E, INT, #10, STL, ZN | 4 | | 983124 |
| 45 | | | LABEL, BLANK, 3.00X5.00 | 1 | | 603348 |
| 46 | | | MOUNT, CABLE STRAP | 1 | | 242837 |
| 47 | | | CONTROLLER, PROGRAMMED, GUN POS'R ICONTROL | 1 | | 1055963 |
| 48 | | | CAP, FLUSH, 7/8 DIA | 3 | | 900809 |
| 49 | CR502 | 700-HLS1Z24 | RELAY, SOLID STATE | 1 | ALLEN BRADLEY | 1092942 |

★ CUT JUMPER AS REQUIRED FOR REQUIRED LENGTHS.

*ITEM 15 I/O MODULE GROUP COMPONENT BREAKDOWN.

| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |



⊗ HIDDEN JUMPER "J6" MUST BE CHANGED FROM FACTORY SETTING

MULTI-SPEED BOARD JUMPER SETTINGS

| | | |
|----------|--------------------------------|---------|
| PRESET 1 | LO - NO R/F - F HI - YES | FORWARD |
| PRESET 2 | LO - NO R/F - R HI - YES | REVERSE |
| PRESET 3 | LO - YES R/F - R HI - NO | BLOWOFF |
| PRESET 4 | N/A | |

ADJUST FOR DESIRED FORWARD SPEED
ADJUST FOR DESIRED REVERSE SPEED

IF NECESSARY, ADJUST "RESP" UPWARD TO CORRECT FOR DRIFTING OR RESPONSE PROBLEMS WITH THE MACHINE MOTION.

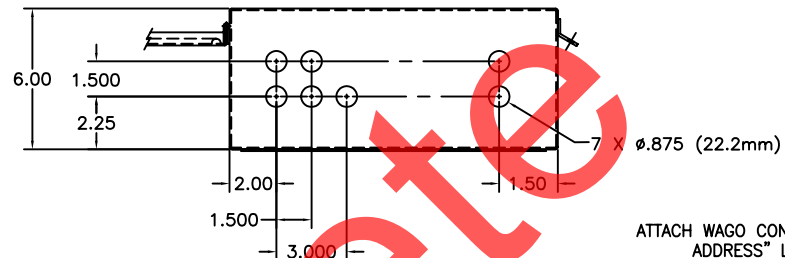
FULLY COUNTERCLOCKWISE=315°=0%
FULLY CLOCKWISE=225°=100%

| MULTI SPEED BOARD POT | %CLOCKWISE |
|-----------------------|------------|
| PRE 1 | 50-100% |
| PRE 2 | 50-100% |
| PRE 3 | 50% |
| PRE 4 | N/A |

| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |

PATCH CABLE, RJ45 CONNECTOR

CAT5 TERMINATION MODULE/BOX MOUNTED TO INSIDE WALL, NEAR ENCLOSURE DOOR.



ATTACH WAGO CONTROLLER TEAROFF "HARDWARE ADDRESS" LABEL TO THIS SURFACE.

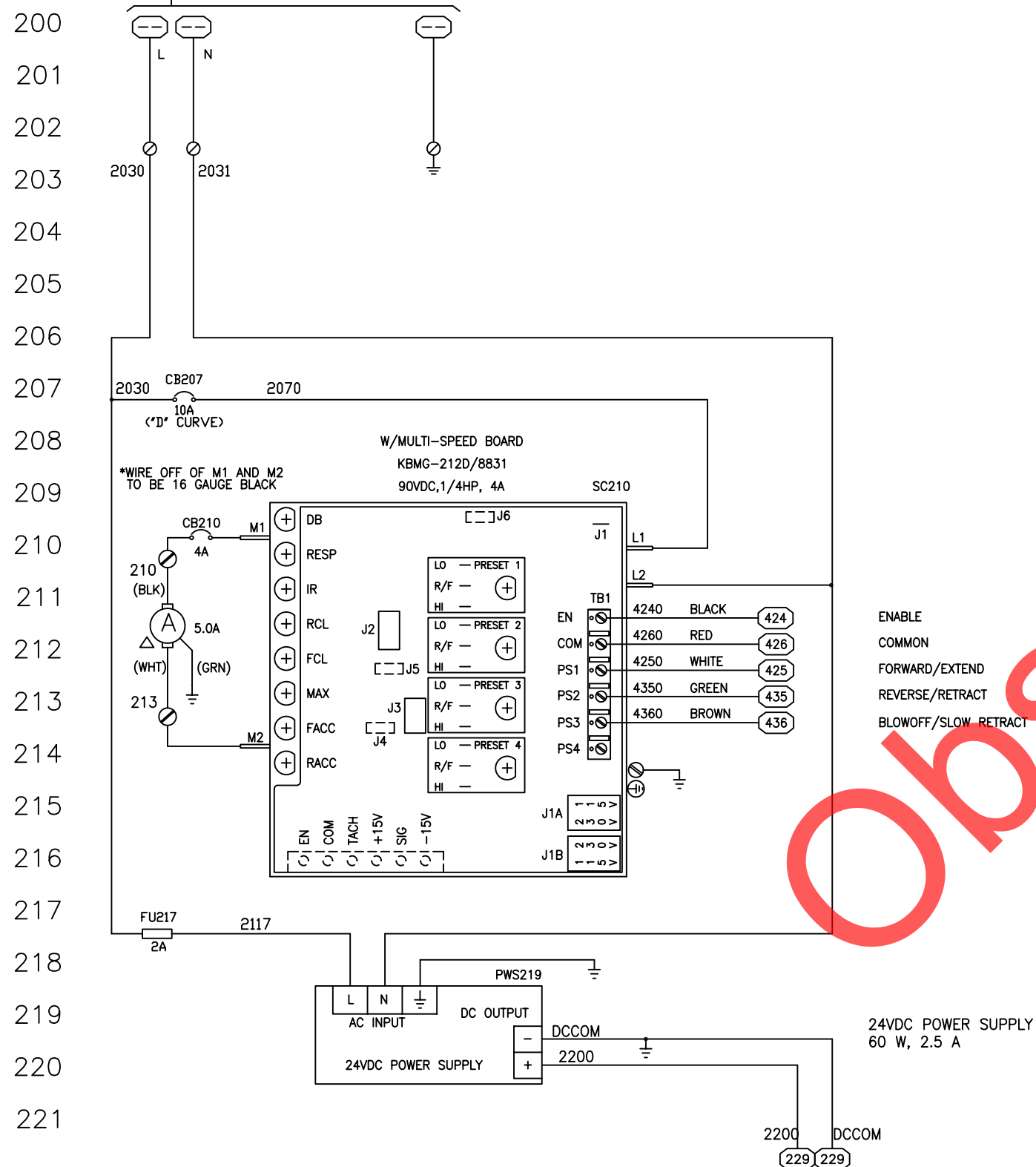
NORDSON PART NUMBER LABEL

NOTES

- ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.
- THIS PANEL IS APPROPRIATE FOR TOP DOWN VERTICAL POSITIONERS & SPECIAL 1/2HP IN/OUT POSITIONERS.
- THIS PANEL SUPPORTS (1) VERTICAL POSITIONER.

| | | | | |
|--------------------------------------------------------|-----|-----------------|--------------------------------------------|------------------------------------------------------|
| ITEM | ICT | PART NO. | DESCRIPTION | QTY. |
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | | | |
| NEXT ASSEMBLY | | DRAWN BY RF | DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | CHECKED BY GS | APPROVED BY GS | |
| IN-OUT POSITIONER | | REL NO PE601307 | CONTROL PANEL, TOP DN POS, 1/2HP, ICONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | CONTROL NUMBER | | 1092923 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: FULL | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING |
| | | PAGE 1 / 6 | | |

USERS 120V
1PH,60 Hz,
10 AMP SUPPLY

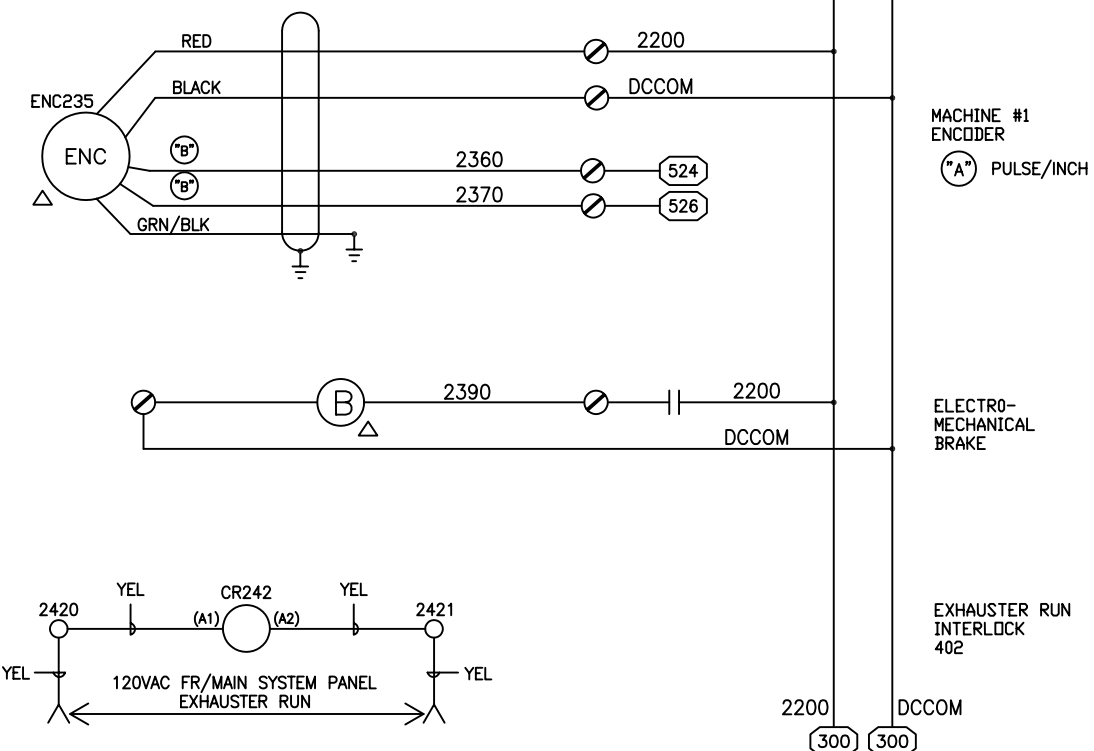




NOTE

1. CHECK MOTOR WIRING.

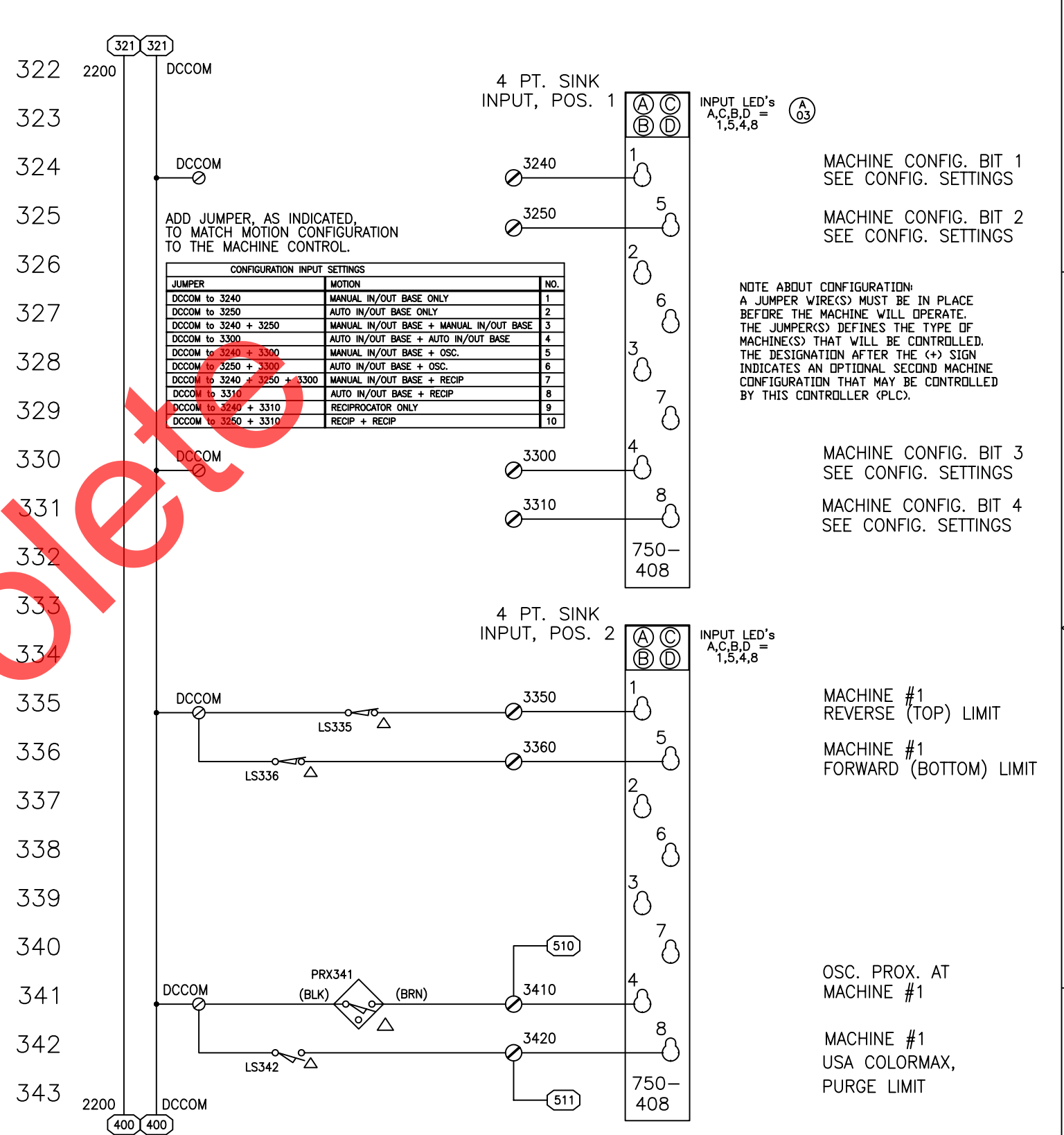
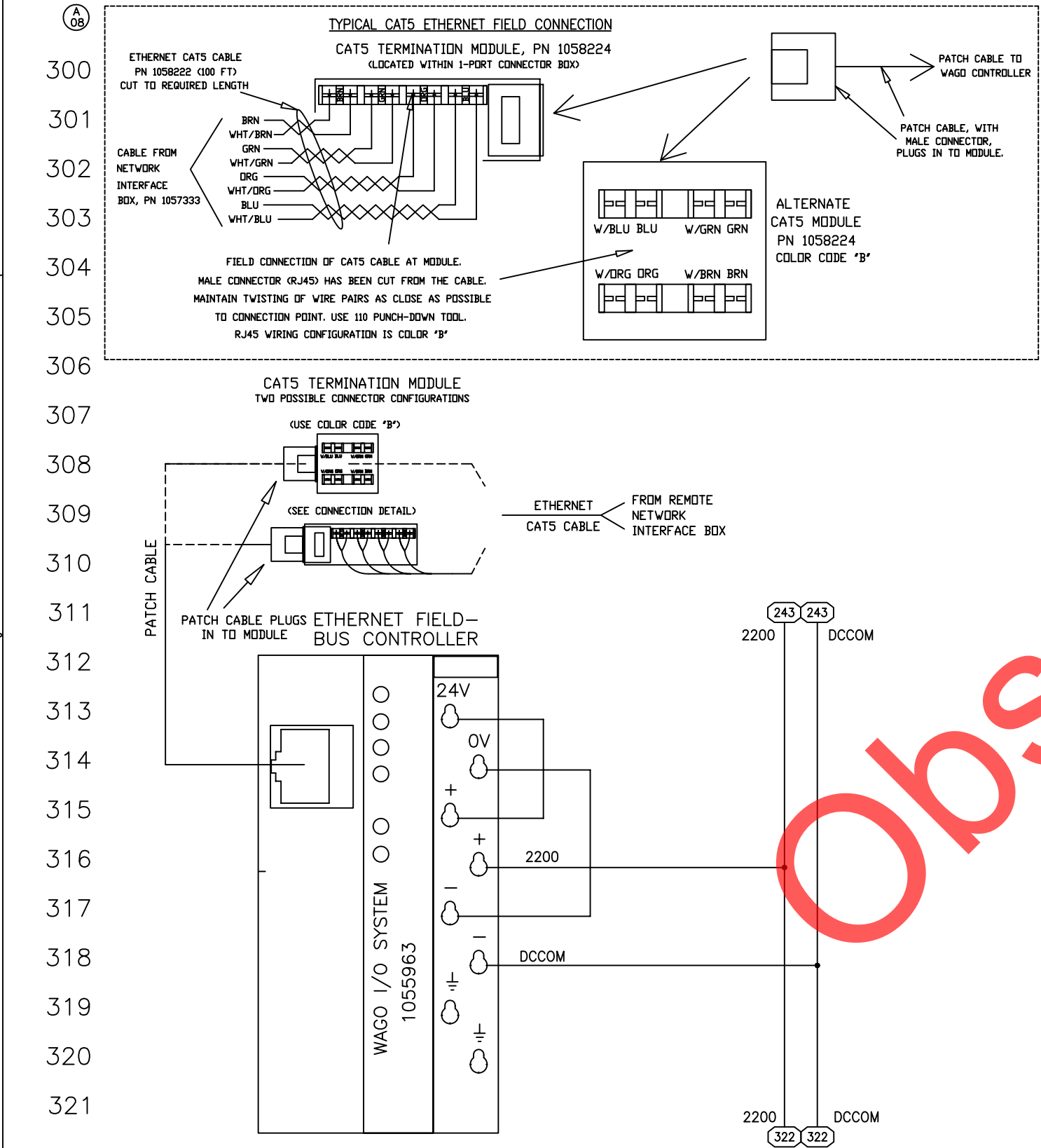
ENCODER RESOLUTION AND WIRING

| BASE TYPE | PULSE/INCH (A) | WIRING (B) |
|---------------------------------|----------------|-------------------------------|
| RACK & PINION 1018682 | 262 | 2360 = GREEN 2370 = ORANGE |
| BELT-DRIVE 1056206 | 224 | 2360 = ORANGE 2370 = GREEN |
| TOP DOWN VERTICAL POSITIONER | 143 | 2360 = ORANGE 2370 = GREEN |



| | | | | |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| | | | DRAWN BY RF | DATE 03NOV08 |
| NEXT ASSEMBLY FIRST PRODUCTION USED ON IN-OUT POSITIONER | XXX +/- .030 X.XXX +/- .010 MACHINED SURFACES  | CHECKED BY GS | APPROVED BY GS | CONTROL PANEL, TOP DN POS, 1/2HP, ICONTROL |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO PE601307 | | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION  | CONTROL NUMBER 1092923 | | REV. A01 |
| | | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 2 / 6 |

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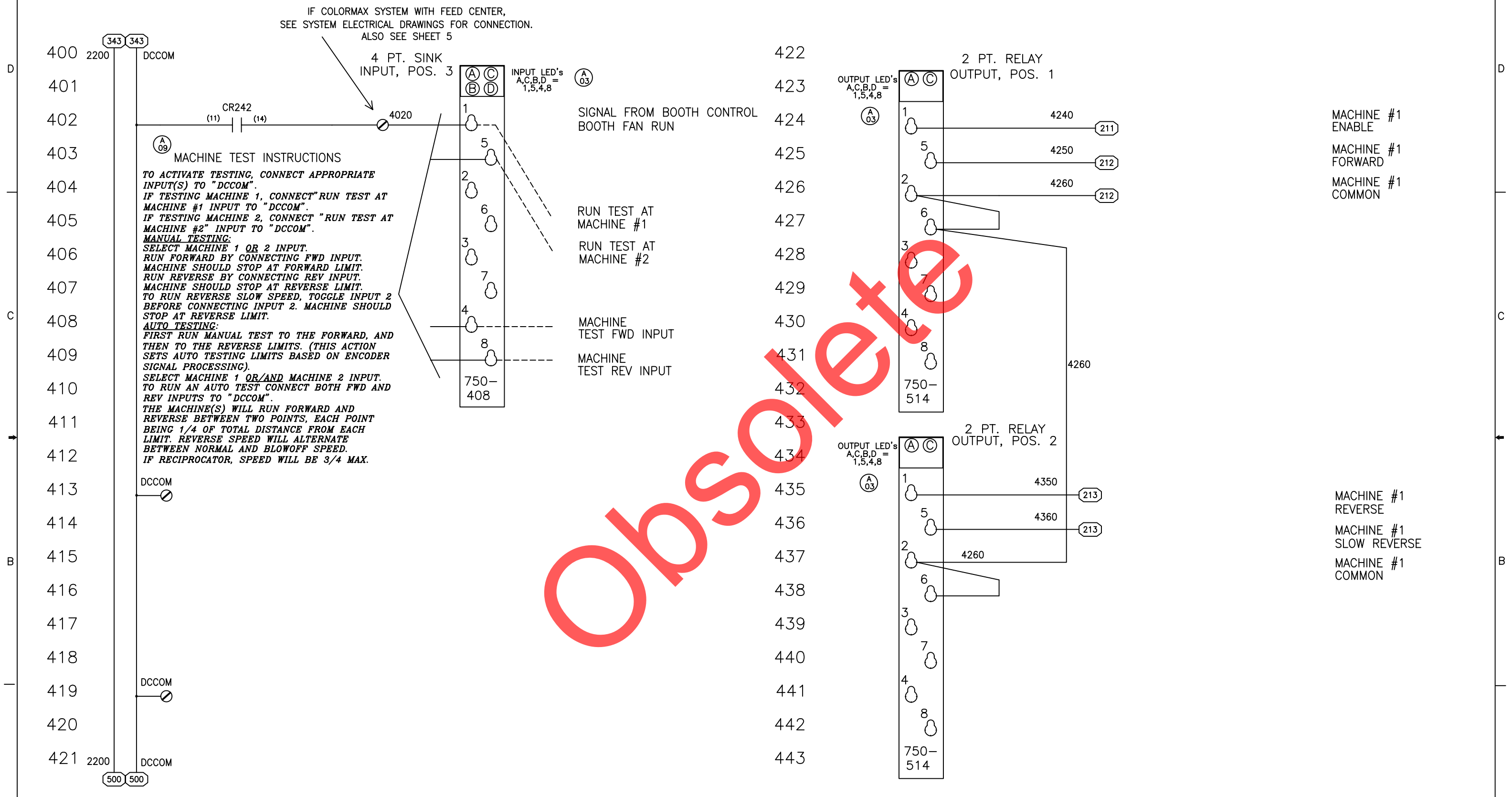
LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUNDOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|--|------------------------|--|----------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY RF | | DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | CHECKED BY GS | | APPROVED BY GS | |
| IN-OUT POSITIONER | | REL NO PE601307 | | CONTROL NUMBER 1092923 | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THIRD ANGLE PROJECTION | | REV. A01 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 3 / 6 | |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.



LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUN/MOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|----------------|---------------------------------------------------------|-------------------------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | RF | DATE | 03NOV08 |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125 AA | CHECKED BY | GS | APPROVED BY | GS |
| IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE601307 | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1092923 | REV. A01 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 4 / 6 |

NOTICE THIS DRAWING IS NORDSON PROPERTY, CONTAINS PROPRIETARY INFORMATION AND MUST BE RETURNED UPON REQUEST. DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

D

C

B

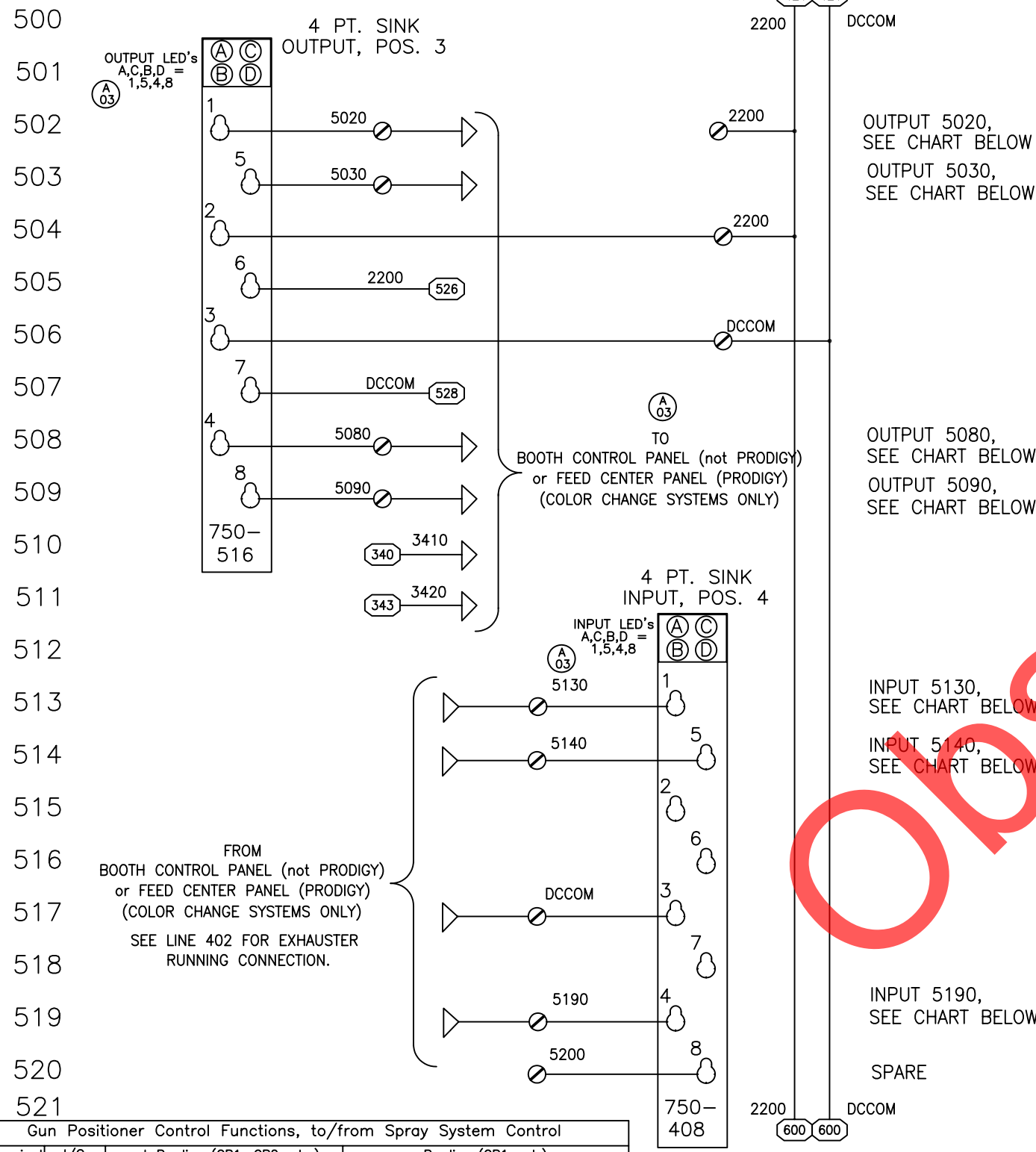
A

D

C

B

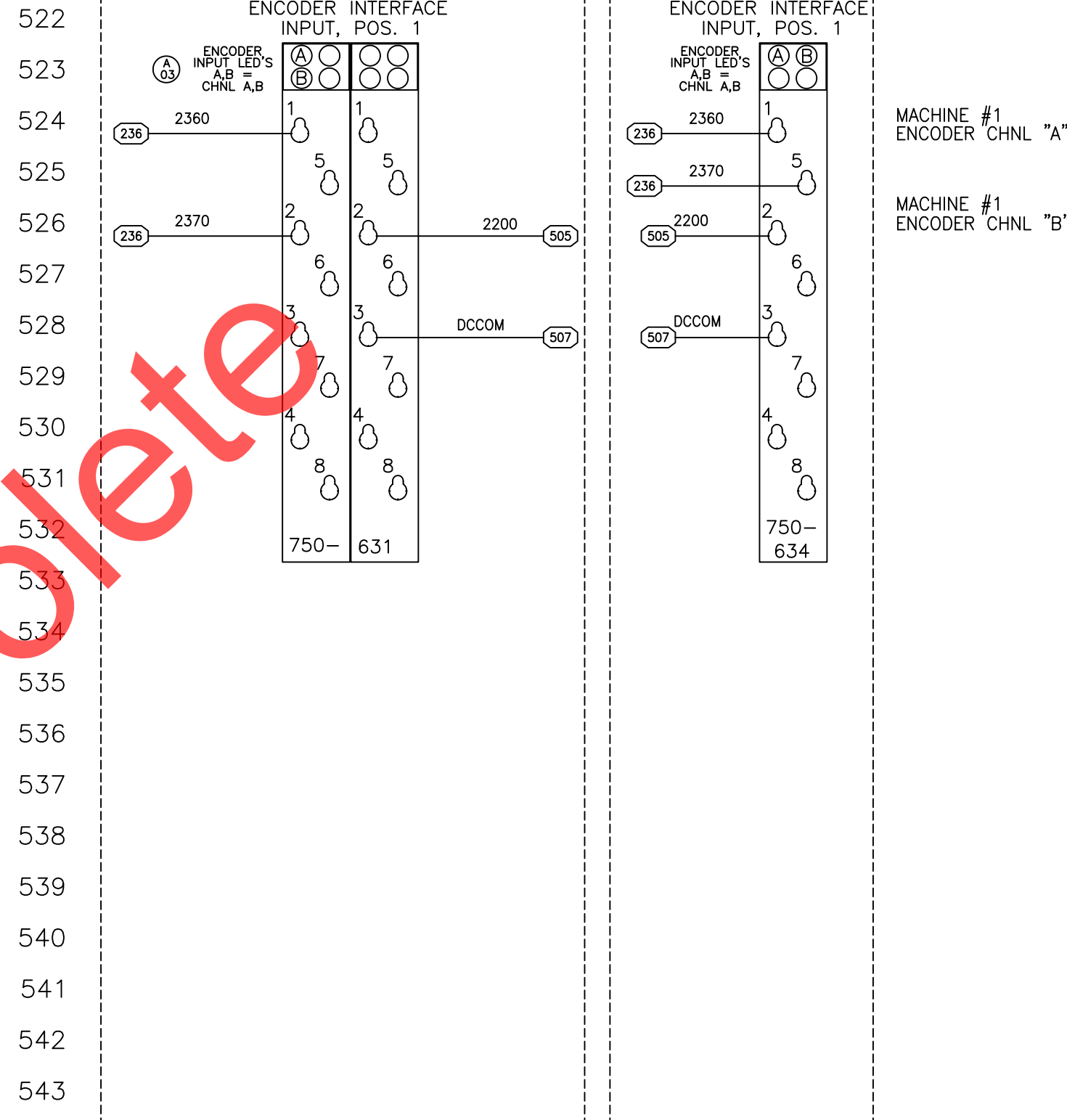
A



| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-----------------------------------------|
| Terminal | I/O | not Prodigy (GP1, GP2, etc.) | Prodigy (GP1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | * Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control (all GP's) |
| 5080 | OUTPUT | Ready for Color Change | Color Change Start From iControl |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

* "Mechanical Brake Control" function active if vertical gun positioner. If Oscillator, then brake function is disabled, positioner is not vertical.

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

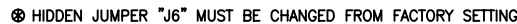


| | | | | | |
|--------------------------------------------------------|--|-------------------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY RF | | DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | CHECKED BY GS | | APPROVED BY GS | |
| IN-OUT POSITIONER | | REL NO PE601307 | | CONTROL PANEL, TOP DN POS, 1/2HP, iCONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER 1092923 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | SCALE: NTS | |
| | | | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | |
| | | | | PAGE 5 / 6 | |

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DO NOT CIRCULATE, REPRODUCE OR DIVULGE TO OTHER PARTIES WITHOUT WRITTEN CONSENT OF NORDSON.

★

| MFG PART NO. | DESCRIPTION | QTY | MFG |
|--------------|-----------------------------------------------|-----|------|
| 750-408 | 4-CHANNEL DIGITAL INPUT MODULE DC 24V | 4 | WAGO |
| 750-514 | 2-CHANNEL RELAY OUTPUT MODULE AC 125V, DC 30V | 2 | WAGO |
| 750-516 | 4-CHANNEL DIGITAL OUTPUT MODULE DC 24V | 1 | WAGO |
| 750-634 | INCREMENTAL ENCODER INTERFACE | 1 | WAGO |
| 750-600 | END MODULE | 1 | WAGO |



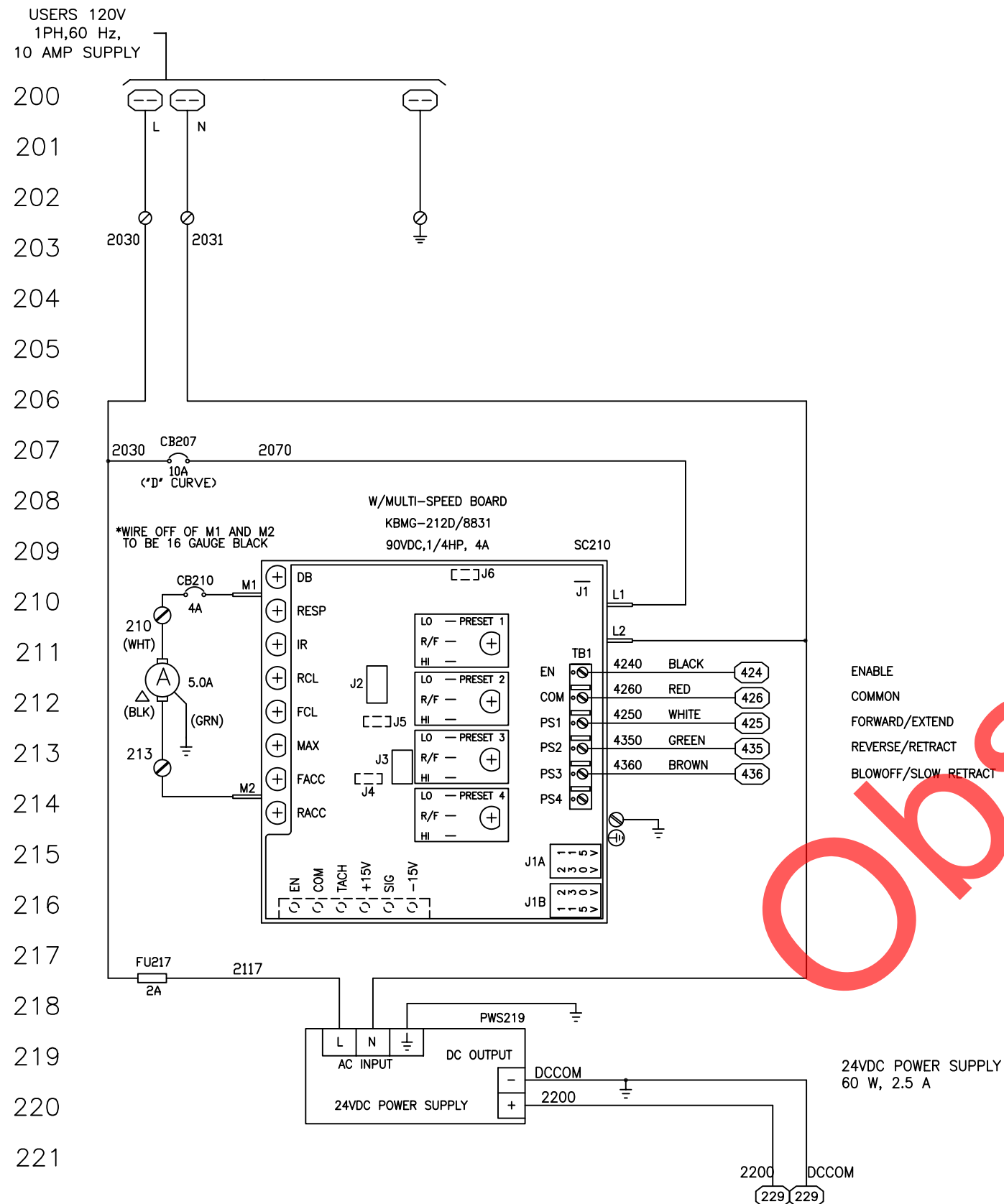
| MAINBOARD POT | % C.W. |
|---------------|--------|
| DB | 100% |
| RESP | 50% |
| IR | 25% |
| FCL | 75% |
| RCL | 75% |
| MAX | 100% |
| FACC | 0% |
| RACC | 0% |



| |
|-------|
| FE |
| 2030 |
| 2031 |
| 2420 |
| 2421 |
| 210 |
| 213 |
| DCCOM |
| DCCOM |
| DCCOM |
| DCCOM |
| 2200 |
| 2200 |
| 2360 |
| 2370 |
| 3240 |
| 3250 |
| 3300 |
| 3310 |
| 3350 |
| 3360 |
| 3410 |
| 3420 |
| 4020 |
| 5020 |
| 5030 |
| 5080 |
| 5090 |
| 5130 |
| 5140 |
| 5190 |
| 5200 |



1. ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.
2. THIS PANEL IS APPROPRIATE FOR BOTTOM UP VERTICAL POSITIONERS WITH 1/2HP MOTOR.
3. THIS PANEL SUPPORTS (1) VERTICAL POSITIONER.

[illegible]

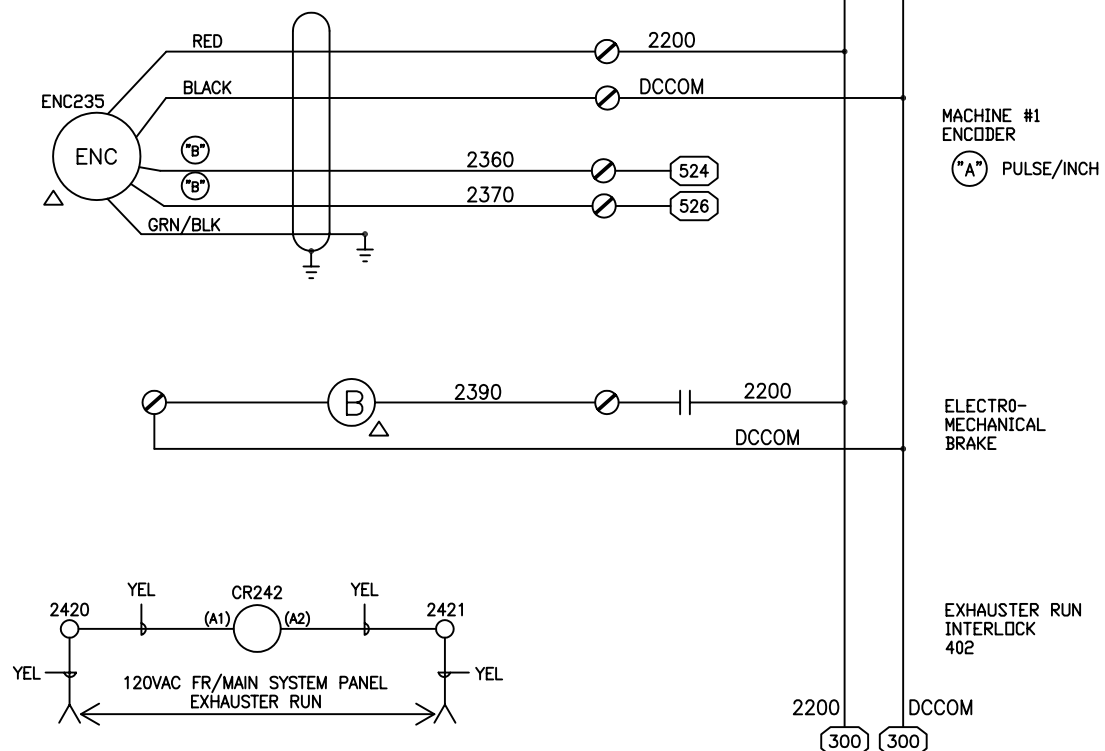


NOTE

1. CHECK MOTOR WIRING.

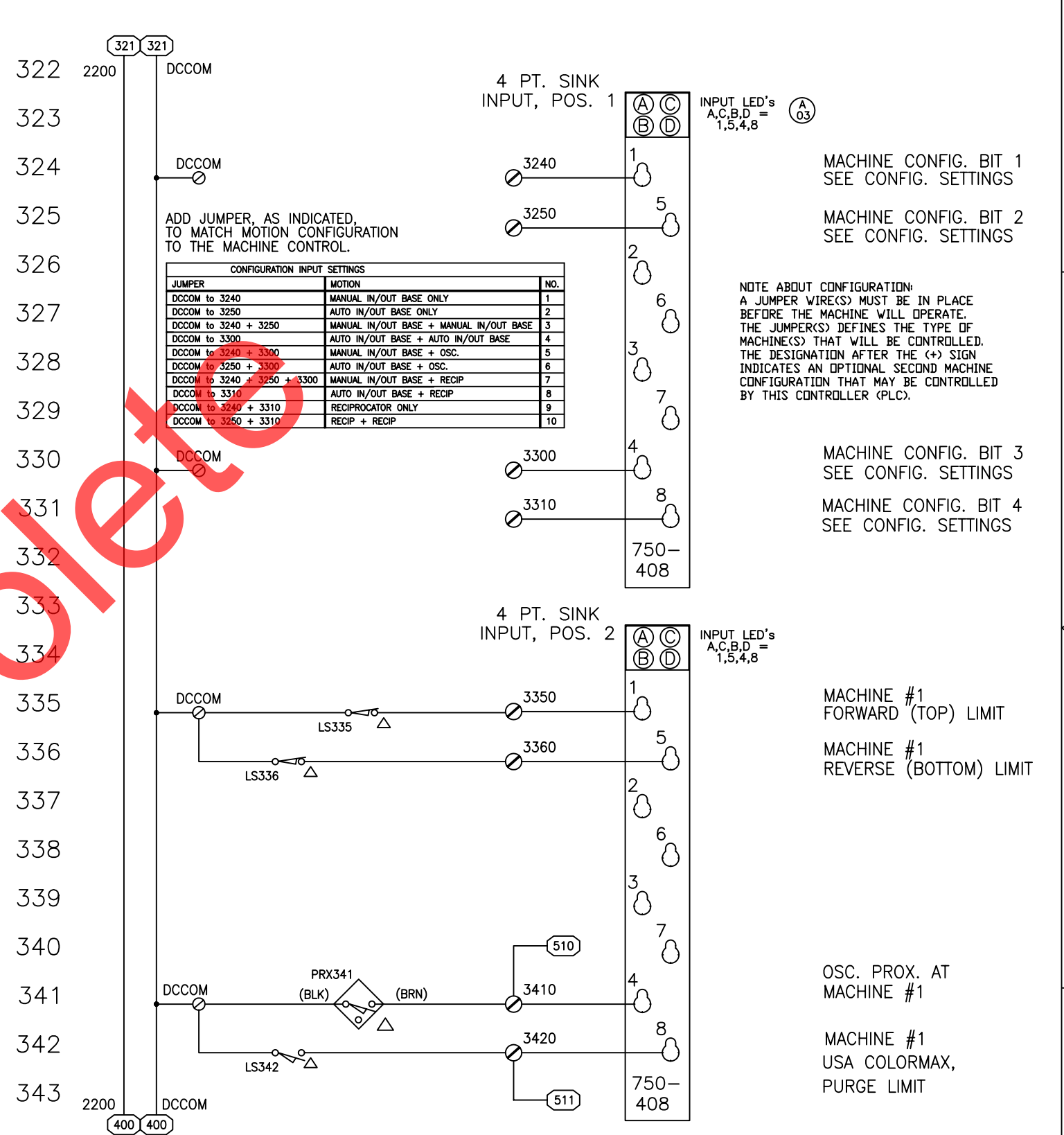
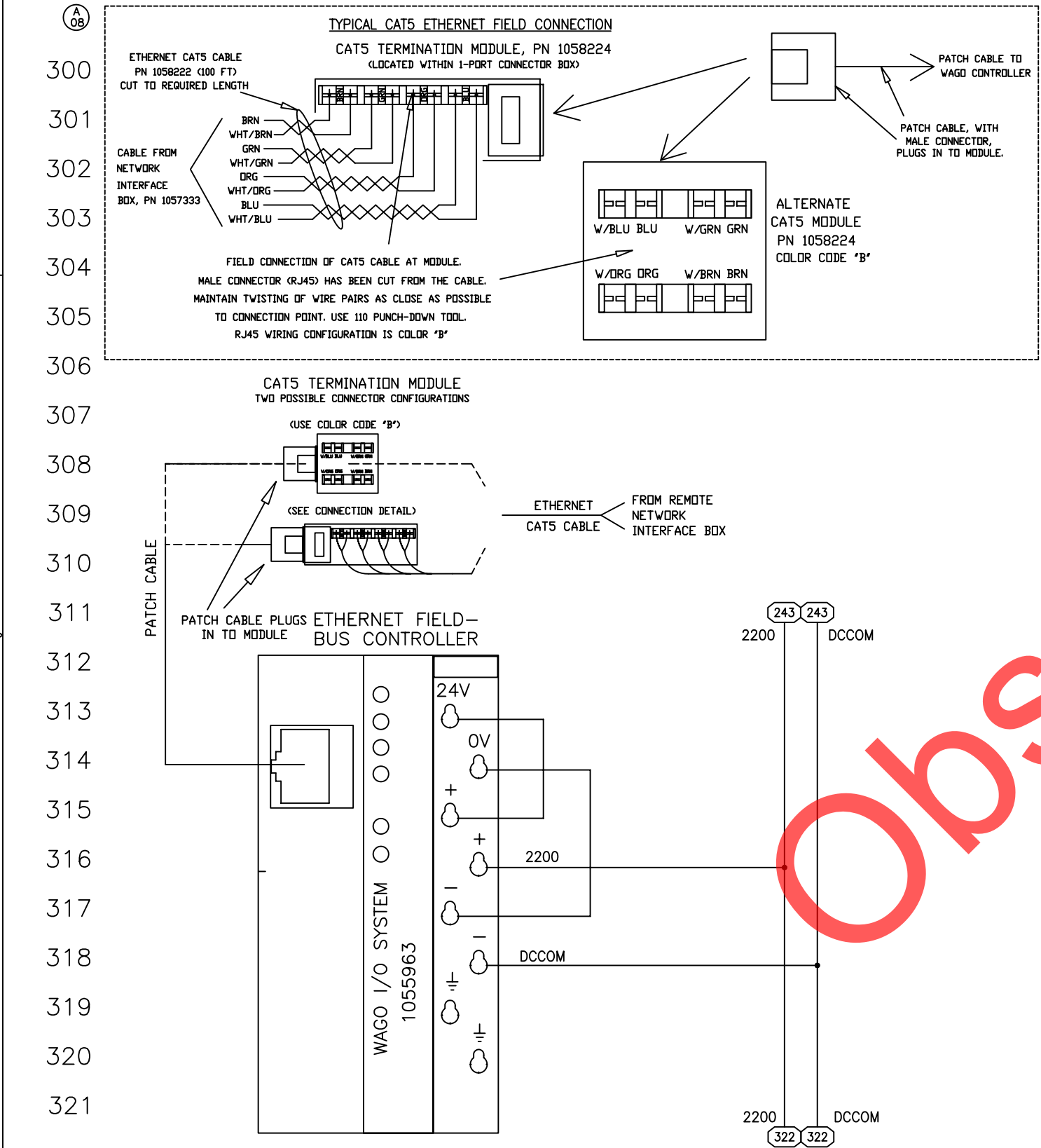
LEGEND
 - REMOTELY LOCATED DEVICE
 - GUNMOVER PANEL TERMINAL

| ENCODER RESOLUTION AND WIRING | | | | | |
|---------------------------------|--|------------|-----|-------------------------------|-----|
| BASE TYPE | | PULSE/INCH | "A" | WIRING | "B" |
| RACK & PINION 1018682 | | 262 | | 2360 = GREEN 2370 = ORANGE | |
| BELT-DRIVE 1056206 | | 224 | | 2360 = ORANGE 2370 = GREEN | |
| TOP DOWN VERTICAL POSITIONER | | 143 | | 2360 = ORANGE 2370 = GREEN | |



| | | | | | | |
|--------------------------------------------------------------|--|------------------------|-------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | | | |
| | | | DRAWN BY RF DATE 03NOV08 | | | |
| NEXT ASSEMBLY | | CHECKED BY GS | | APPROVED BY GS | CONTROL PANEL, BOT UP POS, 1/2HP, ICONTROL | |
| FIRST PRODUCT USED ON IN-OUT POSITIONER | | REL NO | | PE601307 | | |
| INTERPRET DRAWINGS PER ANSI Y14.4M - 1994 STD. | | THIRD ANGLE PROJECTION | | CONTROL NUMBER 1092924 | | REV. A01 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 2 / 6 |

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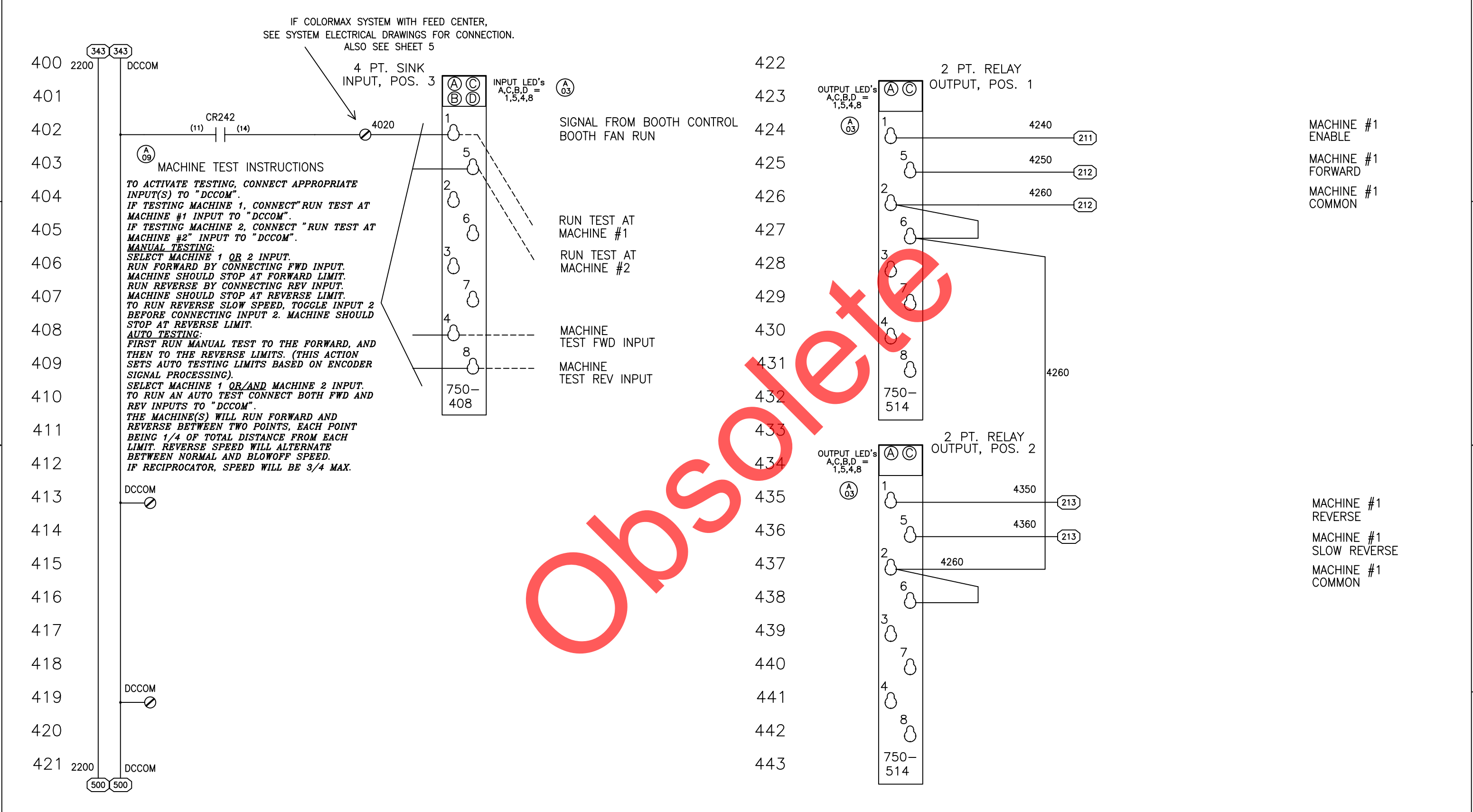


LEGEND

△ - REMOTELY LOCATED DEVICE

⊗ - GUNDOVER PANEL TERMINAL

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LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL

| | | | | | |
|--------------------------------------------------------|----------------------------------------------------|----------------|---------------------------------------------------------|-------------------------------------------------------------------|------------|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | X.XX +/- .030 X.XXX +/- .010 | DRAWN BY | RF | DATE | 03NOV08 |
| FIRST PRODUCT USED ON | MACHINED SURFACES 125 AA | CHECKED BY | GS | APPROVED BY | GS |
| IN-OUT POSITIONER | BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. | REL NO | PE601307 | | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | THREAD LENGTH DIMS. ARE FULL THREAD | CONTROL NUMBER | | 1092924 | REV. A01 |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | THIRD ANGLE PROJECTION | SCALE: NTS | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | | PAGE 4 / 6 |

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D

C

B

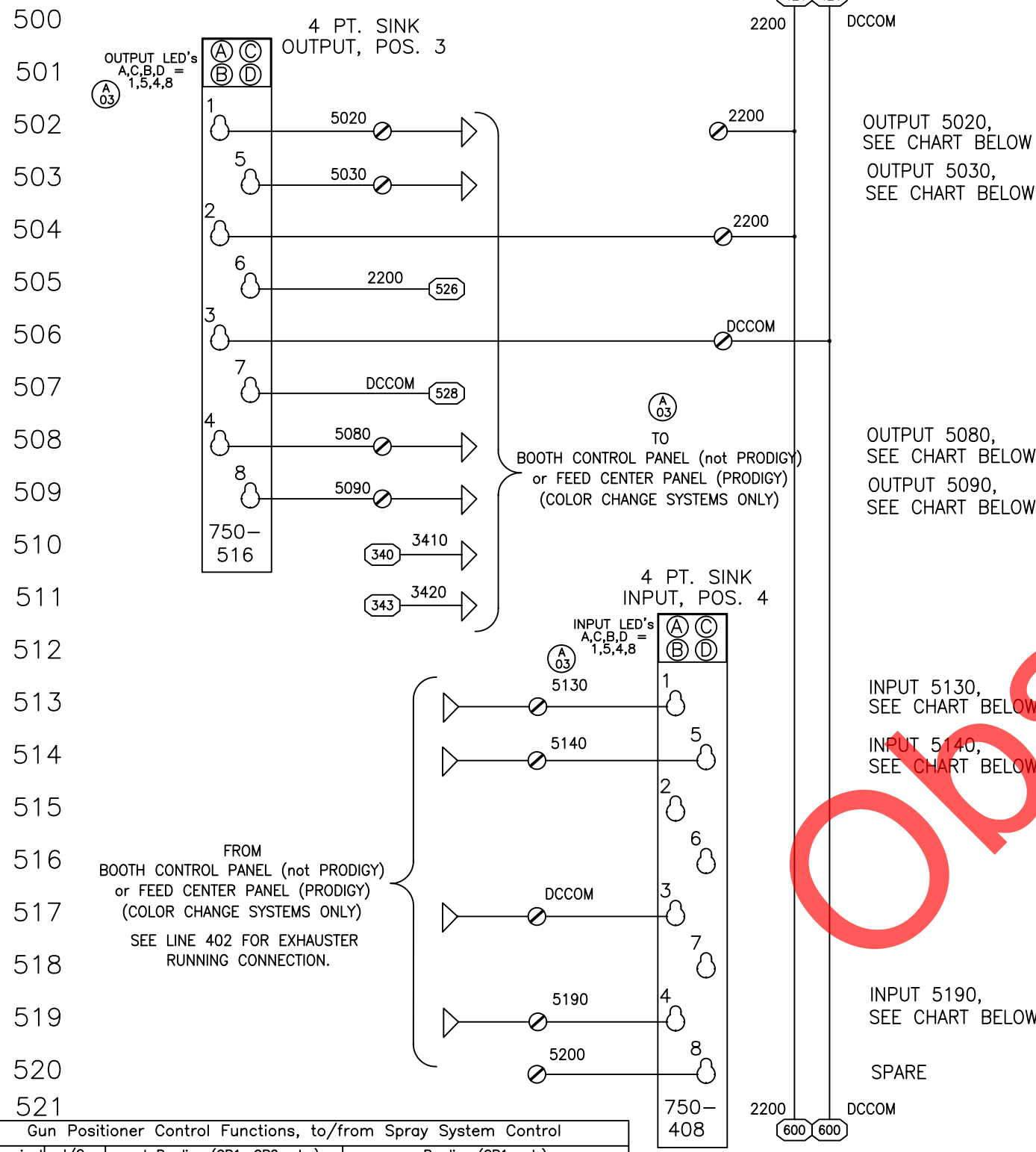
A

D

C

B

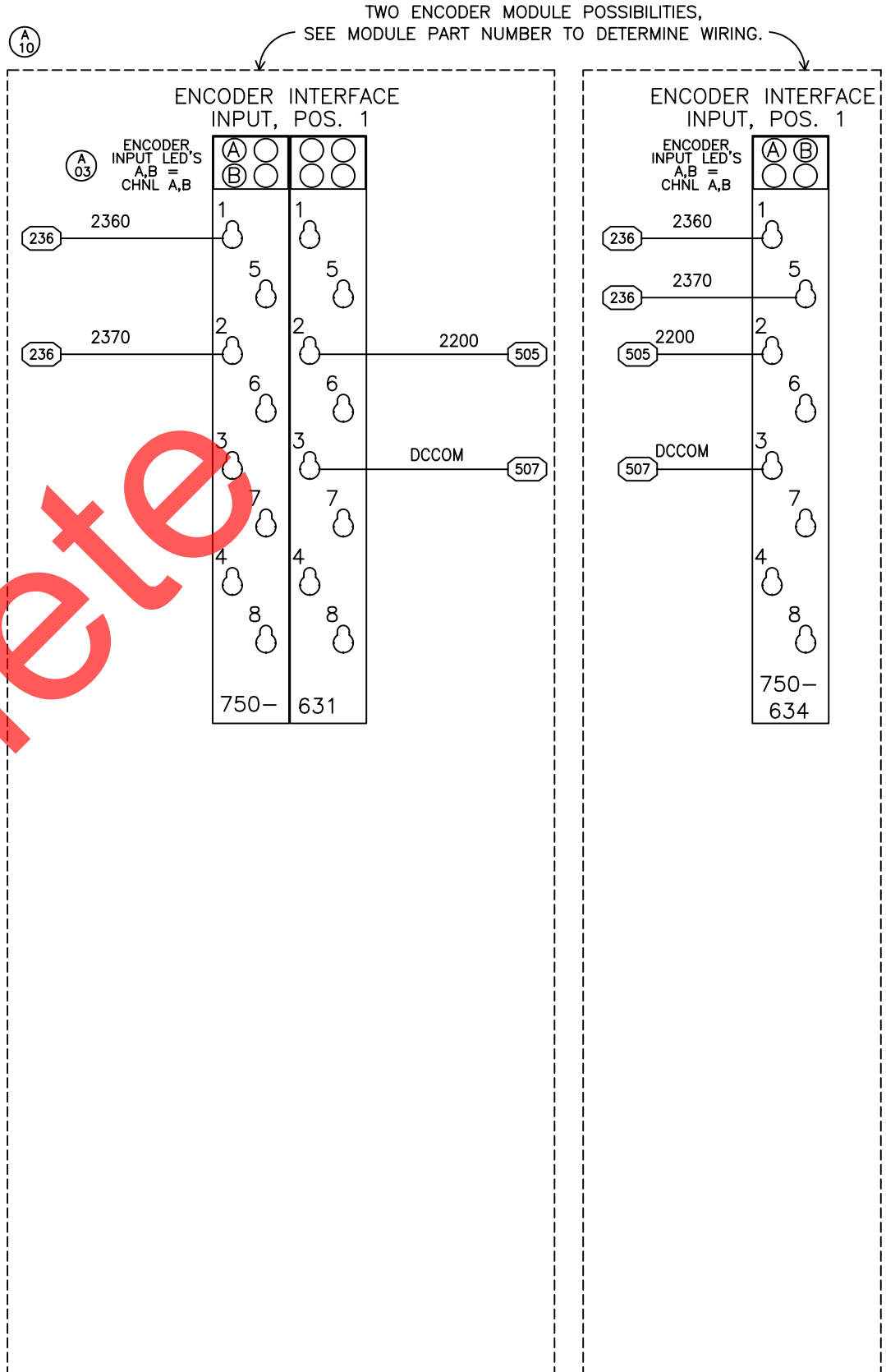
A



| Gun Positioner Control Functions, to/from Spray System Control | | | |
|----------------------------------------------------------------|--------|---------------------------------|-----------------------------------------|
| Terminal | I/O | not Prodigy (GP1, GP2, etc.) | Prodigy (GP1 only) |
| 5020 | OUTPUT | Mechanical Brake Control | * Lockout (if Oscillator, Off = Lock) |
| 5030 | OUTPUT | External Blowoff Air Control | External Blowoff Air Control (all GP's) |
| 5080 | OUTPUT | Ready for Color Change | Color Change Start From iControl |
| 5090 | OUTPUT | External Blowoff Cycle Complete | Purge & Blowoff Cycle Complete |
| 5130 | INPUT | Disable (Off = Disable) | Spare |
| 5140 | INPUT | Run External Blowoff Cycle | Run Color Change Cycle |
| 5190 | INPUT | Internal Purge Cycle Complete | Spare |
| 5200 | INPUT | Spare | Spare |

* "Mechanical Brake Control" function active if vertical gun positioner. If Oscillator, then brake function is disabled, positioner is not vertical.

LEGEND
△ - REMOTELY LOCATED DEVICE
⊗ - GUNMOVER PANEL TERMINAL



MACHINE #1
ENCODER CHNL "A"

MACHINE #1
ENCODER CHNL "B"

| | | | | | |
|--------------------------------------------------------|--|-------------------------------------|--|-------------------------------------------------------------------|--|
| ALL DIMENSIONS IN INCHES EXCEPT AS NOTED | | D SIZE | | NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 | |
| NEXT ASSEMBLY | | DRAWN BY RF | | DATE 03NOV08 | |
| FIRST PRODUCT USED ON | | CHECKED BY GS | | APPROVED BY GS | |
| IN-OUT POSITIONER | | REL NO PE601307 | | CONTROL PANEL, BOT UP POS, 1/2HP, iCONTROL | |
| INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD. | | THREAD LENGTH DIMS. ARE FULL THREAD | | CONTROL NUMBER 1092924 | |
| PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES | | THIRD ANGLE PROJECTION | | REV. A01 | |
| SCALE: NTS | | PRODUCT DEVELOPMENT DEPARTMENT | | PAGE 5 / 6 | |
| | | CAD GENERATED DRAWING | | | |