

SENTRY SYSTEM MANUAL

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Sentry by Orion
Revision 2.8



a division of Pro Mach 

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1. Introduction and Safety

Introduction

Thank you for choosing Orion stretch-wrapping equipment. It is a wise choice, which will benefit your company now and in the future.

Orion uses a unique combination of functional, rugged steel structure and sophisticated control systems to offer equipment high in durability and low in maintenance requirements. Our advance control systems mean that Orion equipment can be operated safely and efficiently without the need for special operator expertise.

Please read this manual carefully and keep it handy. Following these simple operating instructions will insure the safe and efficient performance of this machine while simple maintenance procedures will guarantee a long and productive life of the equipment.

Note: This manual covers standard features of the machine. Certain options may not be fully covered due to their unique application. Every effort has been made to ensure document accuracy however, Orion Packaging retains the right to change specifications without notice.

In order to acquire more information about custom made features of your machine and to provide quicker service, the following information is required when making an inquiry:

- Model: Sentry by Orion
- Serial #: Shown on machine ID sticker

Distributed by Orion Packaging: Alexandria Minnesota, USA

About this Manual

Orion is committed to helping you maximize the productivity of your system. This manual is specifically designed for your packaging system, to assist you in the operation and maintenance of your new equipment. Please take the time to familiarize yourself with the contents of this manual.

- Section 1 is the Introduction and Safety section. This section discusses safety, lock out/ tag out, hazard messages, and installation information.
- Section 2 is the System Description section. This section discusses machine specifications. A Machine Layout Drawing is found at the end of this section.
- Section 3 is the System Operation section. This section describes the operator control panels, the Human Machine Interface, and operational procedures.
- Section 4 is the Troubleshooting section. A Troubleshooting chart is found in this section.
- Section 5 is the Maintenance section. In this section you will also find a suggested maintenance schedule including a maintenance log. Assembly drawings conclude this section.

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Safety

Orion's stretch wrappers should be operated with caution and common sense as any other industrial equipment. To prevent injury and/or electrical shocks, careful operation of the machine and awareness of its many automatic functions is required.

Note: All electrical power and compressed air must be disconnected prior to all inspection, maintenance or repair work.

At Orion, we are committed to building quality packaging and material handling equipment. To achieve this, our machines must be efficient, easy to maintain, and safe to operate.

Before attempting to operate the equipment, become familiar with the safety recommendations and operational components of your Semi-Automatic Stretch Wrapping Machine. You should also become familiar with the technical information pertaining to components used within the system, including their operating and safety features. This information is located in the Vendor Data Manual and in other literature supplied with the equipment. To maximize machine safety and efficiency you must operate the machine correctly and comply with the safety features described.

Stay alert and remember: Safety is the responsibility of everyone who operates or services your BEC system.

System Safety Recommendations

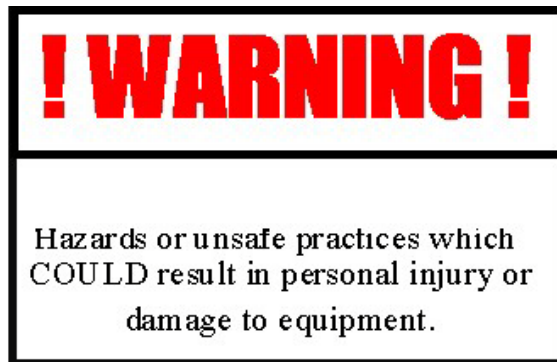
Safeguarding personnel that operate and/or maintain automated equipment is the primary consideration. Because it is very dangerous to enter the operating space (work envelope) of a machine during operation, adequate safeguards must be in place and safety precautions must be observed.

The following general precautions are recommended for all personnel who perform system operation or maintenance.

- Do lockout-tagout procedures whenever you do maintenance and repair work.
- All personnel who repair, maintain, or operate the equipment need to know the location of all EMERGENCY STOP buttons.
- Do not operate the equipment with any of the safety guards removed.
- Do not wear neckties, loose clothing, or long loose-hanging hair around any equipment.
- Observe and follow the DANGER, WARNING, and CAUTION messages throughout this manual, in vendor manuals, and displayed on the equipment.
- Personnel should attend all available safety and operational training courses.
- Personnel should know and follow the recommended safety procedures whenever they must enter the packaging systems motion area.
- Personnel should not enter the packaging system while control power is "ON".
- Personnel should not power up the system if someone is on the system.
- The system should be powered down when not in use.
- Personnel should pay special attention to all the posted warnings and cautions located on any devices. Observe all safety and/or precautionary steps and procedures when working with the system.
- Personnel should keep the system clean to make it easier to spot hazards.

Hazard Messages

Notations appear on pages of this manual to alert the reader to important messages regarding a significant hazard for personnel or equipment. These messages convey three levels of risk as defined below. Failure to observe these instructions can result in death, serious injury, damaged equipment, or loss of product or production.



- | | |
|----------------|--|
| DANGER | Denotes the possibility of serious injury or death to personnel. |
| WARNING | Denotes the possibility of potential injury or damage to equipment. |
| CAUTION | Denotes the possibility of damage to product or an interruption of production. |

Operation Safety

The following safety precautions are recommended for all personnel who will operate this Semi-Automatic Stretch Wrapping Machine.

- Operators should immediately report unsafe working conditions to a supervisor.
- The operator should understand the function of the entire system including all external devices and equipment that interact with the system.
- Before starting operation, the operator should understand the complete task that the system is designed to accomplish.
- The operator should know the location and functional status of all devices (switches, sensors, control signals) that can cause the system to move.
- The operator should know where each EMERGENCY STOP button is located for both main and external control devices. Do not hesitate to use them in an emergency.
- The operator should make sure all safety devices are functioning and periodically checked for proper operation.
- The operator should ensure that all personnel are outside the working area of the machine before starting operation.
- The operator should never enter, or allow others to enter the system during automatic operation.

Maintenance Safety

The following safety precautions are recommended for all personnel who are responsible for the maintenance or service this Semi-Automatic Stretch Wrapping Machine.

- Personnel should ensure that all safety devices are functioning and periodically checked for proper operation before performing maintenance.
- Before performing any maintenance, service, or inspection inside the main control panel, the power source should be turned off and locked out.
- Maintenance should be performed on the system with the power OFF. Lockout and tag out procedures should be followed to protect personnel from injury and to indicate the equipment is being serviced.
- Place a lock on the main electrical disconnect, while performing maintenance.
- Personnel should pay careful attention to all devices that may be powered or capable of motion.
- Release or block all stored energy devices that may present a danger when working with the system.
- Be aware when removing a servomotor or brake that the associated mechanical part will fall unless supported in some manner.
- Use only specified replacement parts. Never use non-specific fuses that have not been specified. Potential fire and/or damage may result.
- Before restarting the system, ensure personnel are not in the system and that the system and external devices are operating properly.

Lockout and Tagout Recommendations

Electrical System

(See OSHA 1910.147 & OSHA 1910.333 (b)(2) for exception to procedures)

To avoid hazards of electrical shock or other personal injuries, the main power disconnect for the system and any other separate sources of power for the system shall be locked out & tagged as a safety precaution during entry and maintenance to the system.

To accomplish this, set the Main Power Disconnect operating handle to the "OFF" position and install a personal locking device through the padlock hole on the operating handle. Attach a Danger tag to the handle containing a statement prohibiting unauthorized operation of the disconnect and removal of the tag signed by the individual responsible for locking out the system. If several personnel are performing maintenance, each individual shall install a lockout device and tag.

A qualified person shall verify that the equipment is de-energized by:

1. Operating controls to verify equipment cannot be restarted.
2. Using test equipment to test circuits and electrical parts that will be exposed to personnel.

Stored electric energy that might endanger personnel shall be released by discharging the circuits. Check appropriate equipment manuals on exact procedures.

To re-energize equipment, a qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that equipment can be safely energized. Personnel exposed to the hazards associated with re-energizing equipment shall be warned to stay clear of equipment. Each lock and tag shall be removed by the person who applied it or under their direct supervision. A visual determination that all personnel are clear of the equipment shall be accomplished before the operating handle on each Main Power Disconnect is placed to the "ON" position.



Danger!

When performing maintenance, inspection, repair or changeover, execute the Lockout & Tag Out procedure to prevent personal injury – before entering the machine. When you see this symbol, DQ LOCK OUT/TAG OUT.

Installation and First Time Power Up

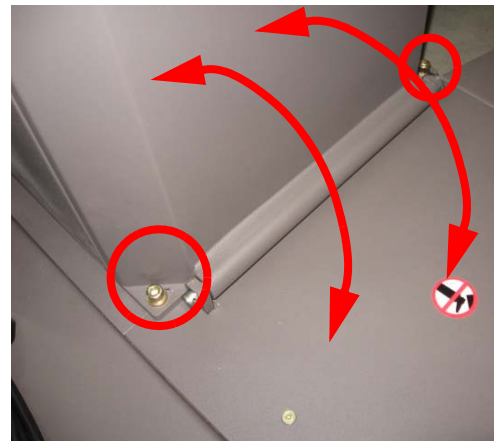
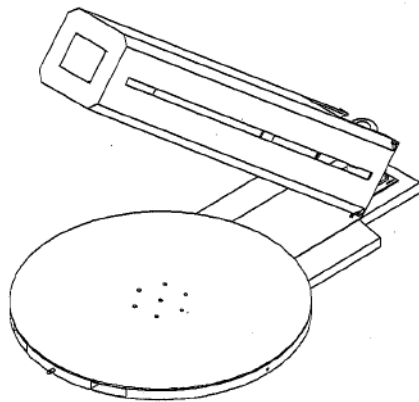
Unloading

Machine can be easily unloaded and transported by a forklift with a minimum capacity of 2500 lbs.

WARNING Use caution when uprighting the tower. Injury could occur.

1. If your model is a high tower, it may have the tower pivoted downward.

*Figure 1 - 1
Tower Pivot Point*



2. Use a secured strap to pivot the tower upright, securely hold the tower upright. Bolt the tower to the base using the four provided 10mm bolts. Make sure not to pinch any electrical connectors.

*Figure 1 - 2
Tower to Base Bolts
(1 of 4 shown)*



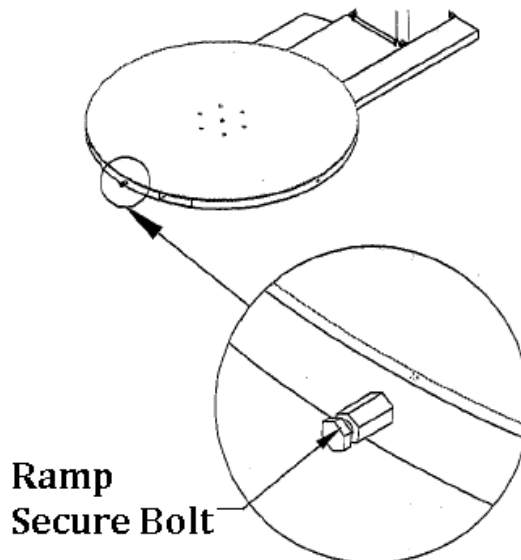
3. Carefully insert the forks into the lifting tubes to the maximum possible depth. The forklift tine width may have to be adjusted.

*Figure 1 - 3
Machine Lifting Fork
Tubes*



4. Lift the machine only to the necessary height to move it with no bouncing or friction on the floor.
5. Sit the machine down assuring uniform contact with the floor, which is necessary to ensure correct and smooth operation.
6. If your machine came with the optional ramp, attach the ramp secure bolt. Next, using a forklift lower the ramp slot over the ramp secure bolt.

*Figure 1 - 4
Ramp Secure Bolt*



Inspection

1. Remove all packing and supporting additions - these may include the blocks under the carriage and the restraining bar over the table.

Note: When removing the stretchwrap film covering the machine, care must be taken not to cut any of the electrical wires and/ or polyurethane covering on the film carriage rollers.

2. Perform a visual inspection of the electrical and mechanical parts for loosened joints and / or broken connections. Any suspected shipping damage must be reported immediately to the freight carrier. Any transport damage cannot be claimed to Orion Packaging Inc.

Items that are vulnerable to damage and must be inspected are as follows:

- Motors and transmissions
 - Junction boxes
 - Electrical conduits
 - Proximity and limit switches
 - Photocells
3. Check around the tower to ensure that there is no crippling of the movable parts i.e. casters, center axle or drive assembly.
 4. Verify the following:
 - Check wires and conduits for crushed sections or loose fittings.
 - Verify the film carriage to be sure that it is correctly aligned with the tower
 - Verify the tension on the lift belt.
 - Verify all the dials and knobs on the control panel for smooth action.
 - Use the panel access keys to open the panel or motor access doors. The Panel Access Key part # is 735586.

Figure 1 - 5
Panel Access Key



Machine Installation

After the visual inspection has been completed, the electrical power and the compressed air (Optional) shall be connected as specified on the diagrams supplied with the machine. An electrical diagram is provided with each machine.

Make sure the machine is on a level surface. Orion Packaging insist on a dedicated circuit be used for this wrapper. Extension cords are not allowed and can void your warranty.

Assembly Procedure

Note: The structural frames of the machine have to be installed on a leveled floor. The base deviation from vertical must not exceed 1/4" on the distance of 10 feet (angle: 0 degrees 6').

Move the wrapper into its final position. If the wrapper is to be secured to the floor, we recommend that the wrapper base section be bolted to the floor by the 1/2" concrete floor anchors (leg & shield or expandable type-Red Heads).

Any wiring that has been disconnected to facilitate transport is marked with a number located on the junction box to which the wiring must be reconnected. Any wire run that appears too short or long may indicate that the position of the mechanical components is incorrect. Verify the status of all assemblies before proceeding.

In the case of the free standing panel (console) place it adjacent to the system and anchor firmly to the floor. Connect the liquid tight (rigid conduit) to the main junction box located on the wrapper main frame next to the tower.

Before Starting Machine Operation

Verify that the machine is properly connected to the electrical source. The electrical requirements depend on the machine type and features. For this information, please see the machine electrical diagram provided with this machine operation manual. The control panel layout for the machine is shown on the drawing.

CAUTION Before preceding the machine operation familiarize yourself with the EMERGENCY-STOP button and all functions, switches and pushbuttons.

System Description Contents

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2. System Description

Machine Specifications

Utilities

- 110 / 1ph / 60hz / 10 Amp Service

Standard Speed

- Variable to 9 Rpm

Drive

- Self-adjusting Heavy Duty Chain Drive
- Soft Start Rotation for Unstable Loads

Control Features

- User Friendly Interface
- Home Position Alignment Stops the Table at the Same Location Each Cycle
- Variable Speed Film Carriage Up/ Down Control
- Adjustable Top and Bottom Wrap Count (1-9)
- Film Carriage Manual Jog Functionality
- Photocell For Automatic Load Height Detection
- Table Jogging
- Password Protected Advanced Settings

Film Delivery

- Powered Pre-stretch Film Carriage
- 200 % Film Prestretch
- 20" Film Width Capacity up to 95 Gauge Film Thickness
- High Strength Chain Lift
- Variable Frequency Drive Motor

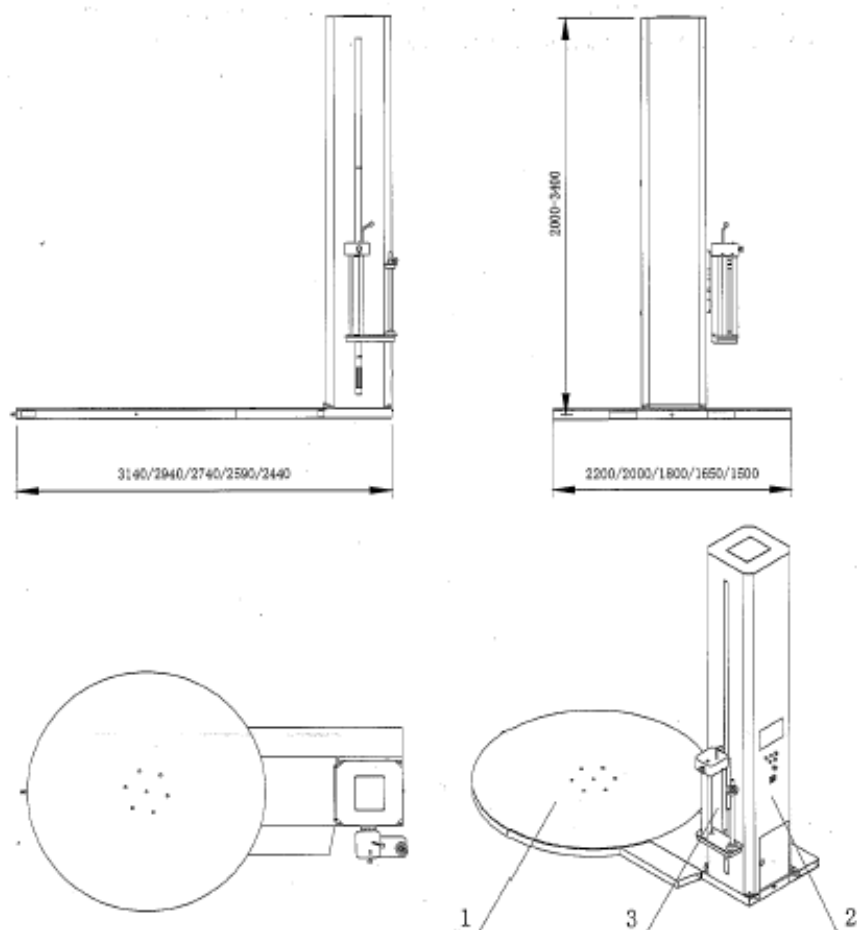
Structural Features

- Machine Weight- 1,650 lbs.
- Wraps Loads 52"x52"x80" High up to 4,000 lbs.
- Structural Steel Construction Throughout
- Easy Access To All Components
- Limited Proprietary Parts For Ease Of Maintenance

Visit Website At www.orionpackaging.com

Machine Floor Plan

*Figure 2 - 1
Machine Layout
Drawing*



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3. System Operation

Control Panel

Below is the control panel for the Sentry by Orion Semi-Automatic Stretch Wrapping Machine.

WARNING Be aware of the movement of the carriage near the control panel. It is possible to be struck by the moving carriage when the machine is running.

*Figure 3 - 1
Control Panel*

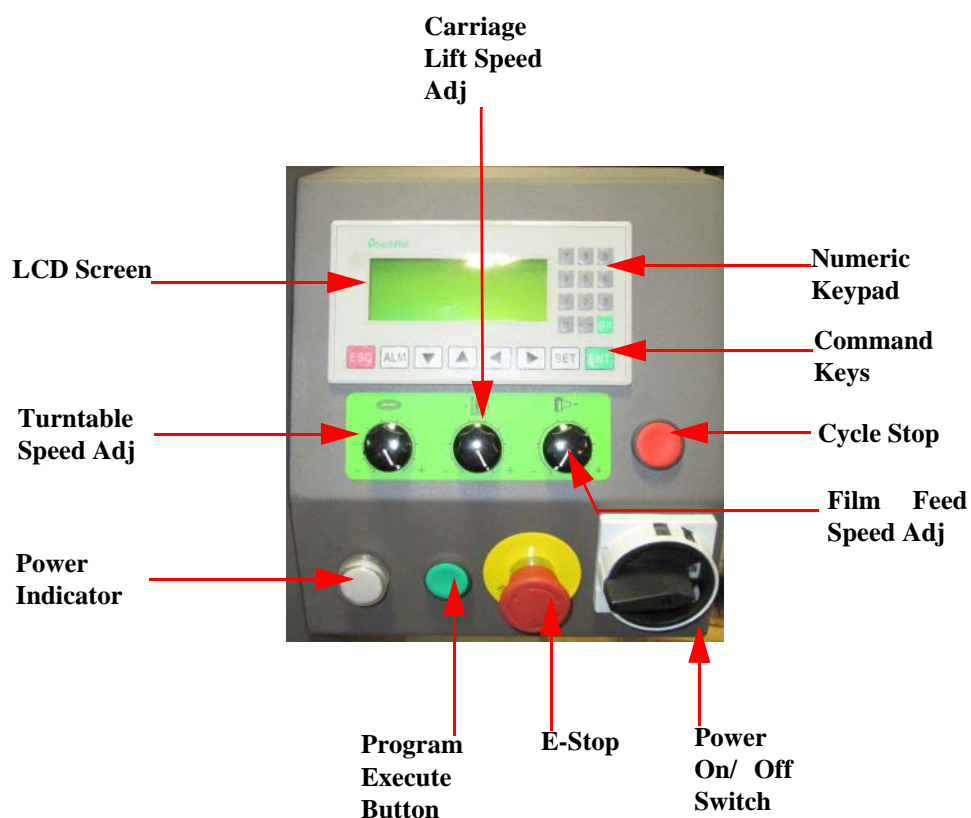


Table 3-1. The Control Panel Button/ Knob Descriptions

BUTTON	DESCRIPTION
TURNABLE SPEED ADJ	Turn this potentiometer knob toward (+) to increase the turntable speed and toward (-) to decrease the turntable speed for any of the programs you are executing. This can be adjusted “on the fly” while the machine is in cycle.
CARRIAGE LIFT SPEED ADJUST	Turn this potentiometer knob toward (+) to increase the carriage up and down speed and toward (-) to decrease the carriage up down speed for any of the programs you are executing. This can be adjusted “on the fly” while the machine is in cycle.
FILM FEED SPEED ADJUST	Turn this potentiometer knob toward (+) to increase the film feed tension and toward (-) to decrease the film tension for any of the programs you are executing. This can be adjusted “on the fly” while the machine is in cycle. Adjusting too much tension in relation to the turntable speed could break the film.
CYCLE STOP	Press this button to bring the machine to a controlled stop. The machine does not lose control power when a cycle stop is initiated.
POWER INDICATOR	This light is illuminated when machine power is present.
PROGRAM EXECUTE BUTTON	Press this button to execute the program selected. To select a program, go to (2) program and select a program. The machine will not start unless a program is currently being viewed on the LCD screen. For instance, pressing this button while on the Menu screen will not start the machine.
E-STOP	Press this button to stop the machine immediately.
POWER ON/ OFF SWITCH	Turn this main power switch to the on position to turn on power to the machine. Turn it to the off position to turn off power. Turn off power when the machine is not in use.
ESC	Press ESC to escape the currently displayed screen. The Menu screen is the top level screen. Pressing ESC while executing a program will stop the machine. Always let the machine run a complete cycle unless there is an emergency situation.
ALM	This button is not implemented on this model.
DIRECTIONAL ARROW	Use the directional arrows to adjust settings on the LCD screen.
SET	Press set to highlight settings on the LCD screen. Highlighted settings are adjustable with either the numeric keypad or up and down arrows.
ENT	Press ENT to confirm a setting. When making parameter adjustments, pressing ESC without first pressing ENT will not save the setting.
NUMERIC KEYPAD	Use the numeric keypad to enter parameters or make selections on the LCD screen.

Operating Procedures

Loading The Film

The film roll can be loaded on the carriage mandrel from either end of the roll. When using tacky film, verify that the tacky surface of the film is inward on the load.

1. Remove the top mandrel spool.

*Figure 3 - 2
Top Mandrel*



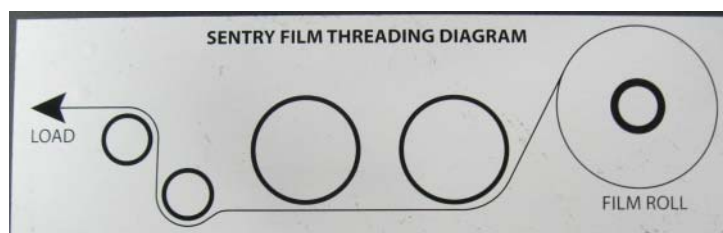
2. Put the roll of film on the bottom mandrel.
3. Install the top mandrel on top of the roll to prevent upward movement.
4. Pull down the carriage open lever and pivot the carriage door open.
5. Pass the roped tail of the film through opening.

*Figure 3 - 3
Film Threading*



6. Thread the film around the spools, as shown.

*Figure 3 - 4
Film Threading*



7. Create some slack where the center roller pushes in on the film. Close the carriage door.
8. Fix the film end onto the load. The system is now ready to begin the first wrapping cycle.
9. Once the cycle is complete, the operator must then sever the wrap between the carriage and the load and remove the load with a forklift or pallet jack (with optional ramp.)

*Figure 3 - 5
Film Properly
Threaded*



The film carriage is equipped with a switch that detects when the carriage threading door is open. When opened, it will prevent the carriage from moving. It will also prevent a wrap cycle from starting, however it will allow the film feed motor to still operate.

WARNING You must turn off the power switch to properly prevent the possibility of the film motor running accidentally.

Starting and Shutting Down

Power On/ Off Switch

Located on the control panel, the rotary power switch has two settings:

- **ON** - connects a power source to the machine.
- **OFF** - disconnects the power source.

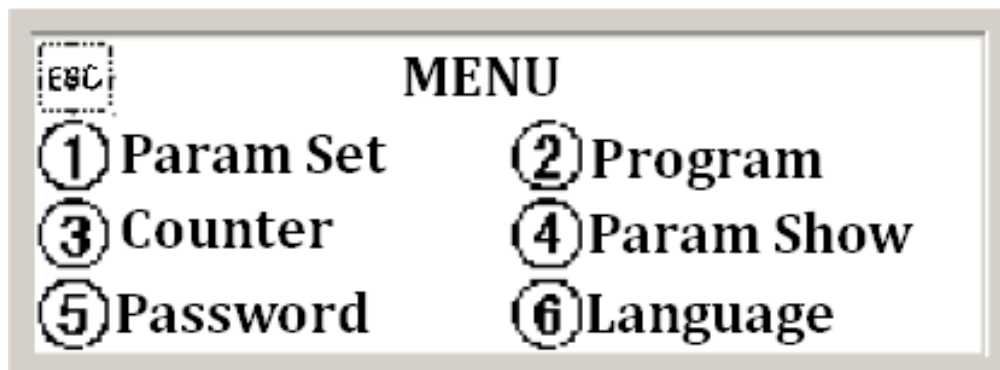
Program Execute and E-Stop Buttons

- The **PROGRAM EXECUTE** button starts the program that is displayed on the LCD screen. If you are not viewing a program on the LCD screen, this button will not start the machine. If you press **ESC** while the machine is running the displayed automatic program, the machine will stop.
- The cycle may be stopped at anytime by pressing the **E-STOP** button.

Viewing and Selecting Parameters

1. Plug in the machine to a 110 power supply.
2. Turn the Power On/ Off Switch to the ON position.
3. On the Menu screen, press 4 to show the current parameters.

Figure 3 - 6
The Menu Screen



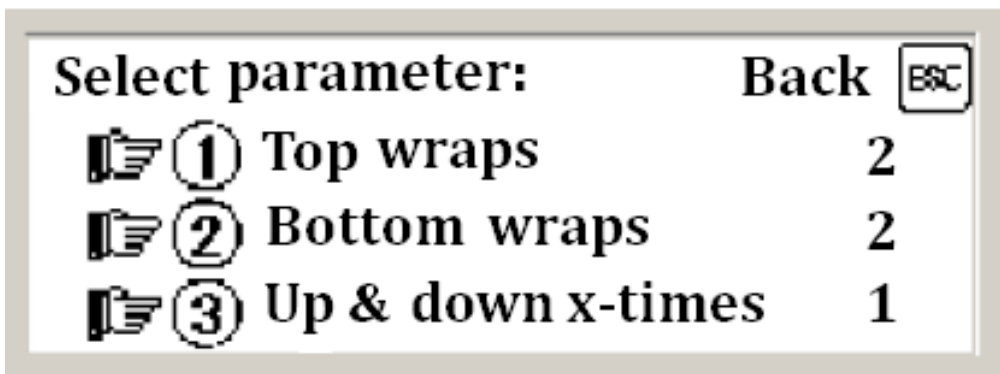
4. This screen shows the current settings. If you are happy with these settings, continue to the next section. See “Selecting a Program” on page 3 - 9. Press **ESC** to go back to the Menu Screen.

Figure 3 - 7
The Parameter Show
Screen




5. On the Menu Screen, press 1 for Param Set. The Select Parameter Screen will display.

Figure 3 - 8
The Parameter Set
Screen



6. Press **1** to choose the number of top wraps to apply to the load.

*Figure 3 - 9
The Top Wrap
Modification Screen*

Modify settings Back 


Use SET

Top wraps: 2

Photocell delay: 15

7. Press **SET** to highlight the photocell delay timer. Use the up and down arrows or the numeric keypad to enter the desired delay before the carriage stops moving up during the automatic cycle. When done, press **ENT**.
8. Press **SET** to highlight the Top Wraps number. Use the up and down arrows or the numeric keypad to enter the desired number of wraps applied to the top of the load during the automatic cycle. When done, press **ENT**.
9. Press **ESC** to go back to the Select Parameter screen.
10. Press **2** to choose the number of bottom wraps to apply to the load.

*Figure 3 - 10
The Bottom Wrap
Modification Screen*

Modify settings Back 

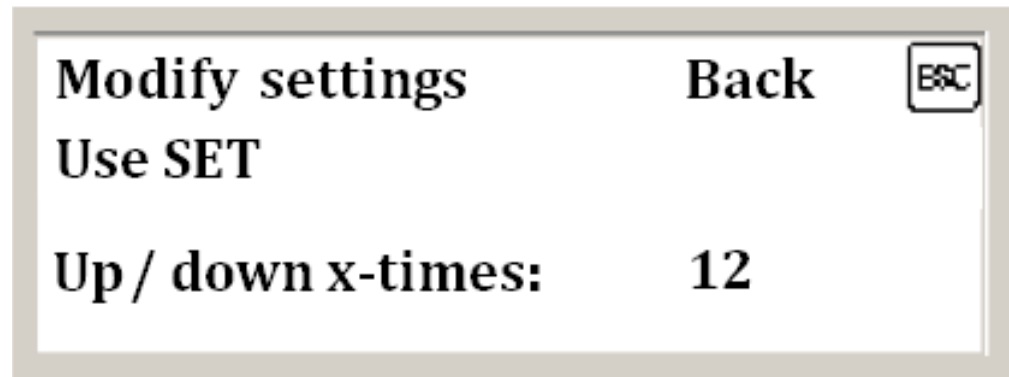
Use SET

Bottom wraps: 2

11. Press **SET** to highlight the Bottom Wraps number. Use the up and down arrows or the numeric keypad to enter the desired number of wraps applied to the bottom of the load during the automatic cycle. When done, press **ENT**.
12. Press **ESC** to go back to the Select Parameter screen.

13. Press **3** to choose the number of times the carriage goes up and down during the cycle.

*Figure 3 - 11
The Up and Down
Number Modification
Screen*

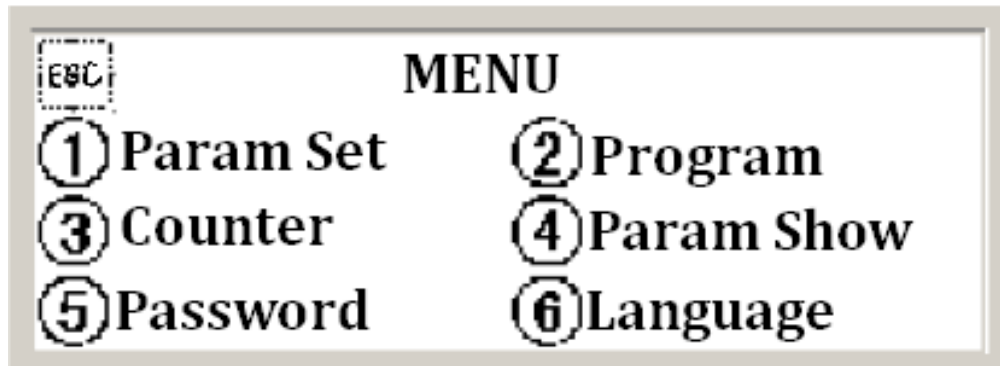


14. Press **SET** to highlight the Up and Down number. Use the up and down arrows or the numeric keypad to enter the desired number of times the carriage travels up and down during the automatic cycle. When done, press **ENT**.
15. Press **ESC** to go back to the Select Parameter screen.
16. Once you are happy with all the parameters, press **ESC** again to go the Menu screen.

Selecting a Program

1. On the Menu Screen, press **2** to choose a wrapping program to run.

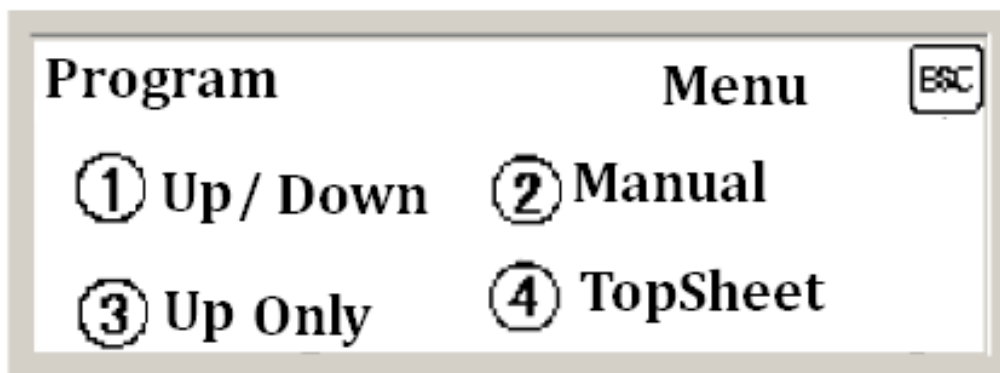
Figure 3 - 12
The Menu Screen



2. On the Program select screen, you can choose Up/ Down mode, Manual mode, Up only mode, and Topsheet mode.

Note: Pressing **ESC** while running any of the programs will stop the machine.

Figure 3 - 13
The Program Screen

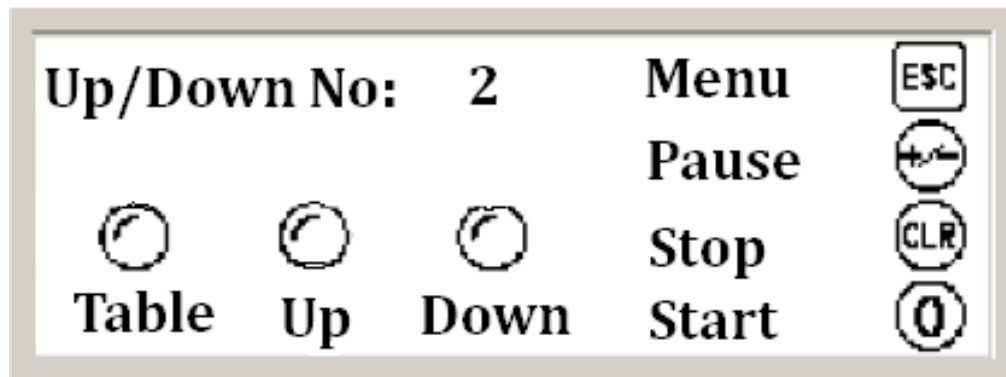


The Up/ Down Program

Up/ Down mode will wrap the number of top wraps chosen in the parameters previously described, then wrap the bottom wraps chosen in the parameters previously described and repeat this process for the number entered in the Up and Down Num parameter. The cycle will then end. The operator must then sever the wrap between the carriage and the load and remove the load with a forklift or pallet jack (with optional ramp.)

1. On the Program Screen, press **1** to choose the Up/ Down program to run.

Figure 3 - 14
The Up/ Down Mode
Screen



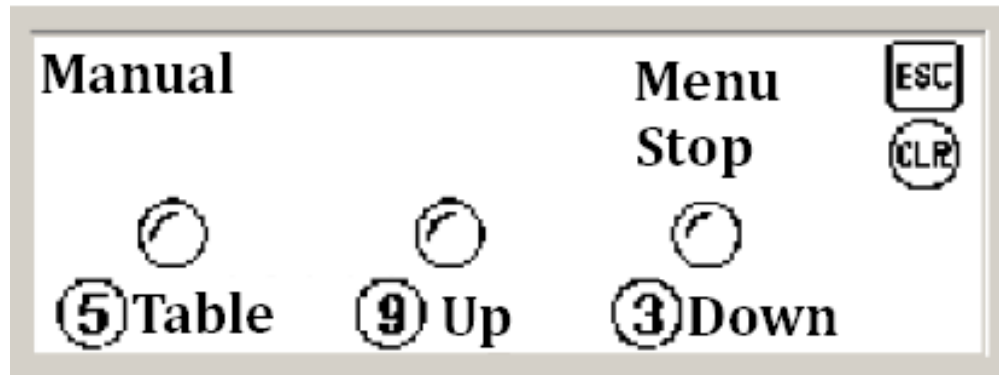
2. Press **0** or the green **Program Execute** button to start the Up/ Down cycle. The table, up, and down indicators will show when the table is running and when the carriage is moving up or down. While running this program, you may also choose the following:
 - A. Press +/- to pause the wrap cycle. The carriage will remain at the location it was at when the machine was paused. Press **0** or the green **Program Execute** button to resume the current cycle.
 - B. Press **CLR** to stop the wrap cycle. The carriage will move down to the start point.
 - C. You may leave the Up/Down screen displayed if you are going to wrap multiple loads. If not, press **ESC** when the cycle is complete to choose a new program.

The Manual Program

Manual mode will allow you to choose a component to jog.

1. On the Program Screen, press **2** to choose the Manual program to run.

Figure 3 - 15
The Manual Screen



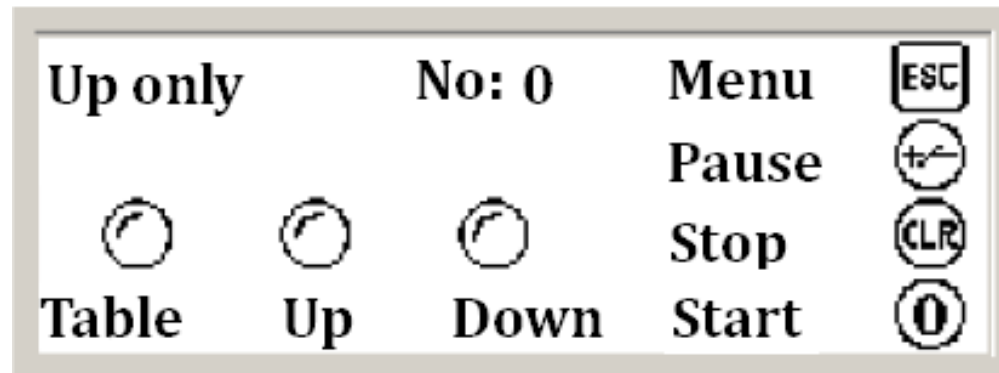
2. Press **5** to jog the turntable. Press **CLR** to stop the jog.
3. Press **9** to jog the carriage up. Press **CLR** to stop the jog.
4. Press **3** to Jog the carriage down. Press **CLR** to stop the jog.
5. When you are done jogging, press **ESC** to choose a new program.

The Up Only Program

Up only mode will wrap the load up only, then the cycle will end.

1. On the Program Screen, press **3** to choose the Up Only program to run.

Figure 3 - 16
The Up Only Mode
Screen



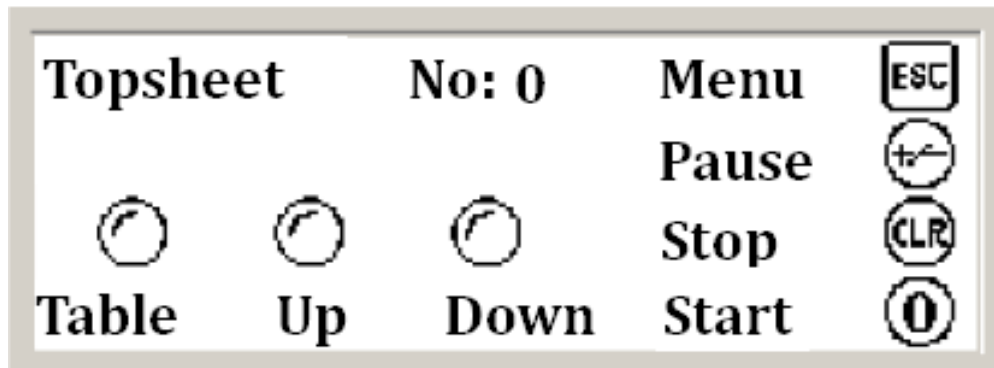
2. Press **0** or the green **Program Execute** button to start the Up Only cycle. The table, up, and down indicators will show when the table is running and when the carriage is moving up. While running this program, you may also choose the following:
 - A. Press +/- to pause the wrap cycle. The carriage will remain at the location it was at when the machine was paused. Press **0** or the green **Program Execute** button to resume the current cycle.
 - B. Press **CLR** to stop the wrap cycle. The carriage will move down to the start point.
 - C. You may leave the Up Only screen displayed if you are going to wrap multiple loads. If not, press **ESC** when the cycle is complete to choose a new program.

The TopSheet Program

Topsheet mode will wrap the load up, then pause. Once the operator is done placing the topsheet on, the operator must restart by press the green **Program Execute** button or **0**.

1. On the Program Screen, press 4 to choose the Topsheet program to run.

Figure 3 - 17
Top Sheet Mode
Screen



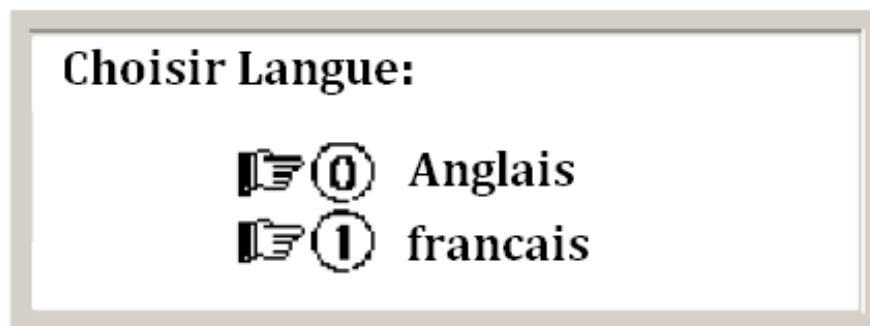
2. Press **0** or the green **Program Execute** button to start the Topsheet cycle. The table, up, and down indicators will show when the table is running and when the carriage is moving up. While running this program, you may also choose the following:
 - A. Press +/- to pause the wrap cycle. The carriage will remain at the location it was at when the machine was paused. Press **0** or the green **Program Execute** button to resume the current cycle.
 - B. Press **CLR** to stop the wrap cycle. The carriage will move down to the start point.
 - C. You may leave the Topsheet screen displayed if you are going to wrap multiple loads. If not, press **ESC** when the cycle is complete to choose a new program.

Additional LCD Screens

Language Screen

This screen allows you to choose the English or French for the HMI language.

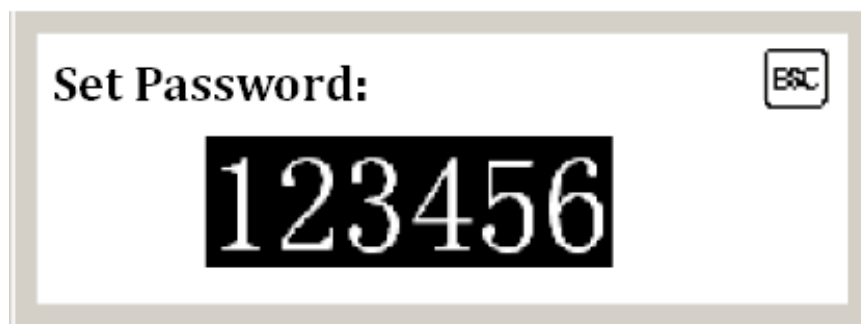
Figure 3 - 18
The Language Screen



Password Screen

This is the Password Screen. Press **SET** to allow password entry. A password can be up to six figures.

Figure 3 - 19
The Password Screen

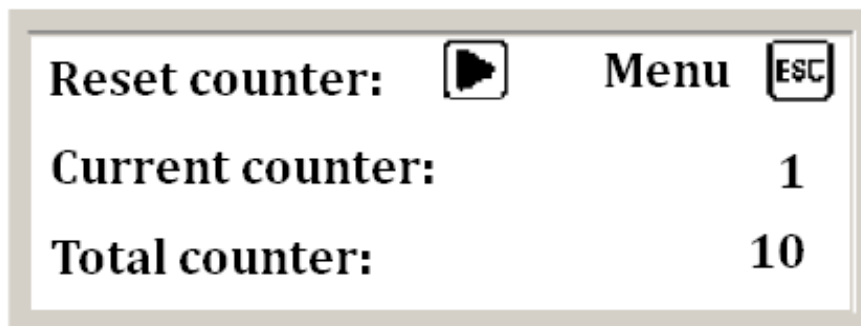


Counter Screen

This is the Machine Cycle Counter Screen.

- Press the **Right Arrow** button to reset the current yield field to zero.
- The current counter display shows the current number of loads since the last reset.
- This total counter display shows the total number of loads the machine has wrapped.

Figure 3 - 20
The Machine Cycle
Counter Screen



Troubleshooting Contents

Troubleshooting4-1

4. Troubleshooting

Troubleshooting

Problems are listed in the left column, and causes in the middle column. Solutions, along with further manual references, are listed in the right column. If the problem(s) cannot be solved after consulting this section and/or appropriate sections of this manual, call Orion at (800) 333-6556.

Table 4-1. Troubleshooting Charts

PROBLEM	POSSIBLE CAUSE	SOLUTION
The Machine Will Not Start	<ul style="list-style-type: none"> A Program is not selected. The machine will not start unless a program is selected. The E-stop button is pressed. The carriage obstacle detect switch/ carriage door open switch located on the bottom of the carriage is pressed. Check that the Power On/ Off Switch in the On position and power is properly plugged in. 	<ul style="list-style-type: none"> See “Selecting a Program” on page 3 - 9. Release the E-stop button. Ensure the bottom of the carriage is NOT pressing on any obstructions. Ensure the carriage door is closed. Plug in the machine. Turn the Power On/ Off Switch to the On Position to allow operation.
Turntable Will Not Turn	<ul style="list-style-type: none"> The turntable potentiometer knob is set too low. The carriage obstacle detect switch/ carriage door open switch located on the bottom of the carriage is pressed. 	<ul style="list-style-type: none"> Turn the turntable potentiometer knob toward the (+) to increase the speed. Ensure the bottom of the carriage is NOT pressing on any obstructions. Ensure the carriage door is closed.
Carriage Will Not Raise or Lower	<ul style="list-style-type: none"> The carriage potentiometer knob is set too low. The carriage obstacle detect switch/ carriage door open switch located on the bottom of the carriage is pressed. 	<ul style="list-style-type: none"> Turn the carriage potentiometer knob toward the (+) to increase the speed. Ensure the bottom of the carriage is NOT pressing on any obstructions. Ensure the carriage door is closed.
The Machine Cycle Stops	<ul style="list-style-type: none"> The obstruction switch on the bottom of the film carriage was tripped. 	<ul style="list-style-type: none"> Remove the obstruction and Restart the program.
The Carriage Stops Prior to the Top of the Load	<ul style="list-style-type: none"> The photocell delay setting found on the Top Wraps Modification Screen is set too low. 	<ul style="list-style-type: none"> Increase the photocell delay.

Table 4-1. Troubleshooting Charts (Continued)

PROBLEM	POSSIBLE CAUSE	SOLUTION
The Carriage Continues Too Far Past the Top of the Load	<ul style="list-style-type: none">• The photocell delay setting found on the Top Wraps Modification Screen is set too high.	<ul style="list-style-type: none">• Decrease the photocell delay.
Continual Film Breakage	<ul style="list-style-type: none">• Film tension is set too high.• Bad or old film.	<ul style="list-style-type: none">• Decrease the film tension potentiometer knob.• Replace the film spool.

Maintenance Contents

Maintenance5-1

 Motor Maintenance5-1

 Reducer Oil Change5-1

 Tower Raceways Maintenance5-2

 Chain Maintenance5-2

 Cleaning The Stretch Rollers.....5-2

 Preventative Maintenance Schedule.....5-4

 All Sentry Standard Series.....5-4

5. Maintenance

Maintenance

All general information about machine maintenance is based on normal machine working conditions: indoor, moderate dust and low moisture environment, and maximum rotation of 9 RPM. They should be regarded as guidelines, reviewed and corrected according to requirements of actual use and conditions.

Motor Maintenance

The drive motors require little maintenance. Simply blow out debris with compressed air on a regular basis.

Reducer Oil Change

All external cap screws and plugs on the reducing transmission should be checked for tightness after the first week. It is recommended to change the oil every six months or at least 1800 hours of operation, whichever comes first. When adding or changing oil, the transmission should never be filled above the oil level mark indicated, because leakage and overheating may occur. Below is the list of the type of lubricant that should be used. List of recommended reducer oils:

Table 5-1. Recommended Reducer Lubricants

MANUFACTURER	LUBRICANT
American Oil Co.	American Cyl Oil no: 196-L
Cities Service Oil Co.	Citgo Cyl Oil 100-5
Gulf Oil Corp.	Gulf Senate 155
Mobil Oil Corp.	Mobil 600 W Suer-r Cyl. Oil
Philips Oil Corp.	Andes S 180
Texaco Inc.	624 + 650T Cyl.Oil
Shell Oil Co.	Velvata Oil J82
Union Oil of Cal.	Red Line Worm Gear Lube 140

Note: For most applications, Mobil One Synthetic 75/90 gear lube is a preferred lubricant.

Tower Raceways Maintenance

The film carriage is sliding on the plastic guides attached behind its back plate. The section of the tower on which the plastic guides move (raceways) should be cleaned and re-greased approximately every 600 hours of machine operation.

Note: If the machine works in a dusty and corrosive environment, the raceways should be re-greased more often (at least every 100 hours).

Chain Maintenance

To clean the carriage lift and stretch chain, wipe them with an oily cloth once a quarter.

When machine is working in a dusty and damp environment, it may be necessary to repeat the cleaning operation more often. Use the most common chain lubricants on the market. With time, the chain will tend to stretch. The tower is equipped with automatic chain tensioner and does not need any adjustment.

Note: First chain tension inspection must be done after the first two weeks of machine usage.

Cleaning The Stretch Rollers

The film carriage requires the most attention when cleaning. The film carriage requires regular cleaning even if there are no product spills into the carriage area. Absolutely DO NOT use wash down methods on the film carriage.

- As the film goes through the rollers, a static charge develops from the film and pulls air borne dust and contaminants into the rollers. The glue that is impregnated to the film, called Tackifier, traps these contaminants to the rollers. Finally, the aluminum pressure rollers on the threading gate press the debris into the rollers causing the rubber rollers to glaze.
- If the rollers become glazed, the film may slip, causing film shear, thus causing film payout to be inconsistent or cause the film to tear regularly. This is completely normal under continued use and occurs on every stretch wrapper made no matter who the manufacturer is.
- The rubber rollers are recommended to be cleaned at every 2000 hours of running. Do not clean the rollers more than once a month unless special circumstances demand. This can cause the rollers to dry out. The cleaning requires only a stiff nylon bristle brush, rubbing alcohol (only)*, and compressed air. The procedure is as follows.
- (See Next Page)

CAUTION This procedure should only be performed by qualified service personnel.

1. Raise carriage to chest height.
2. Disconnect power from the machine.
3. Remove the film from the carriage.
4. Open the threading gate.
5. With the brush wet with rubbing alcohol, lightly scrub both rubber rollers while rotating them. The goal is to just get any debris out of the rollers.

Note: Rubbing alcohol is recommended because it is light enough to penetrate the rubber and it evaporates quickly.

6. After the entire rollers' surface has been cleaned, apply compressed air to the rollers to dry quickly.
7. Re-apply power.
8. Re-load film as discussed earlier.

Preventative Maintenance Schedule

PM Intervals

PM Intervals are based on an average usage of a 16 hour production day.

Table 5-2. PM Frequency

FREQUENCY	PERIOD	DESCRIPTION
12	LPH	(Hour)
96	LPS	(Shift)
192	LPD	(Day)
5760	LPM	(Month)
17,280	LP3M	(3Months)
34,560	LP6M	(6Months)

All general information about machine maintenance is based on normal machine working conditions: indoor, moderate dust and low moisture environment, and maximum rotation of 9 RPM. They should be regarded as guidelines, reviewed and corrected according to requirements of actual use and conditions.

All Sentry Standard Series

Daily

- Prior to switching the film roll, inspect that there is no excess film wrapped around any of the carriage rollers.
- Use compressed air to blow out any loose debris in the carriage.
- Monitor the machine during operation for any abnormal noises or vibrations.

5,760 Loads or one month

- Inspect rubber stretch rollers. Clean as needed per instructions in manual. Replace worn rollers, as needed.

17,280 Loads or three months

- Inspect under turntable. Check the chain tensioner. Use compressed air to clean debris as needed.
- Inspect turntable support casters for good condition.
- Inspect carriage lift chain condition. Tension as needed. Apply a light coating of lubricant.
- Inspect prestretch chain. Tension as needed. Apply a light coating of lubricant.
- Inspect turntable chain. Tension as needed. Apply a light coating of lubricant.

34,560 Loads or 6 months.

- Check all hardware. Tighten screws and bolts, as needed.

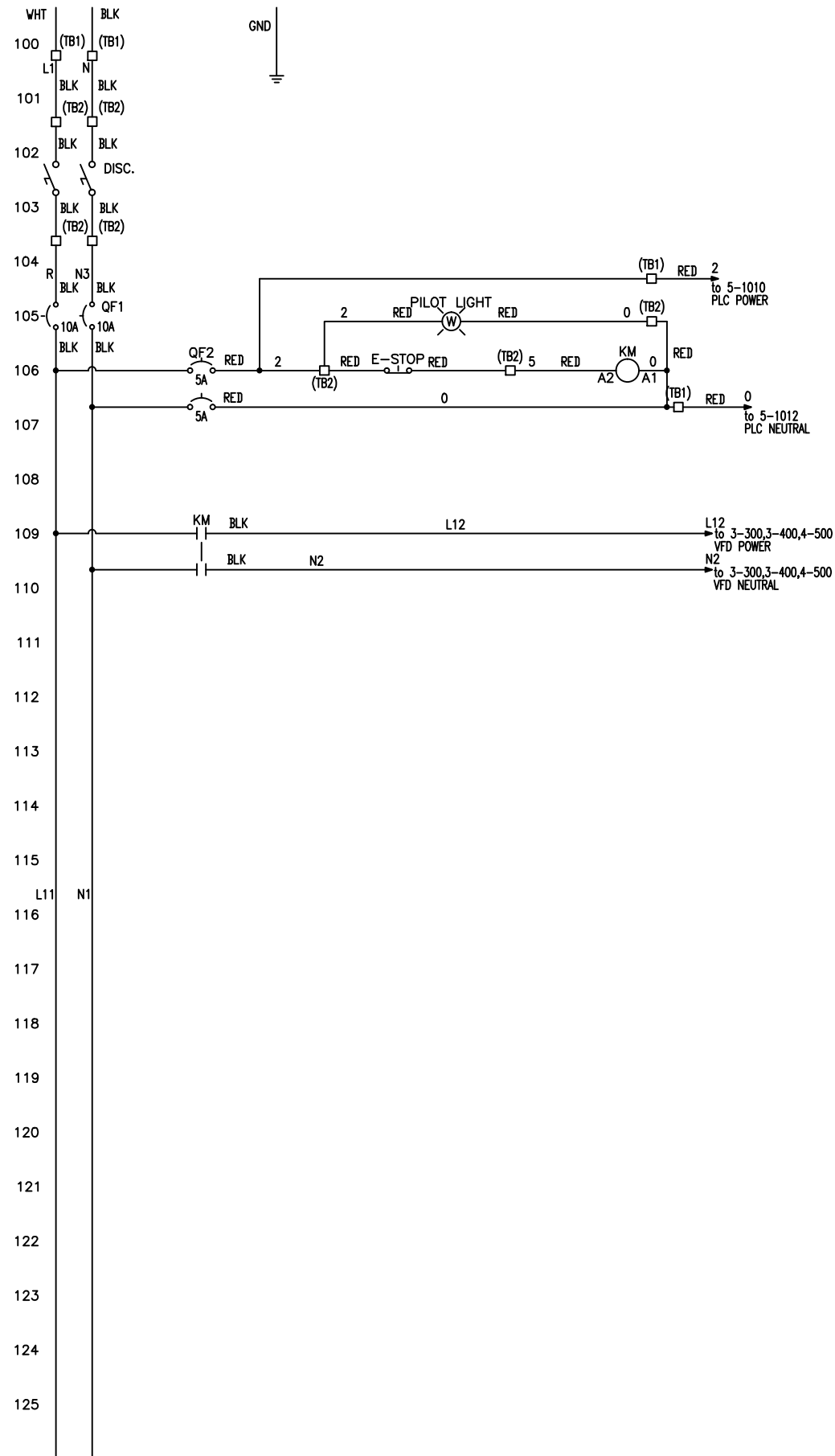
Electrical Prints and Mechanical Drawings

Electrical Prints6-1
Mechanical Drawings6-2

6. Electrical Prints and Mechanical Drawings

Electrical Prints

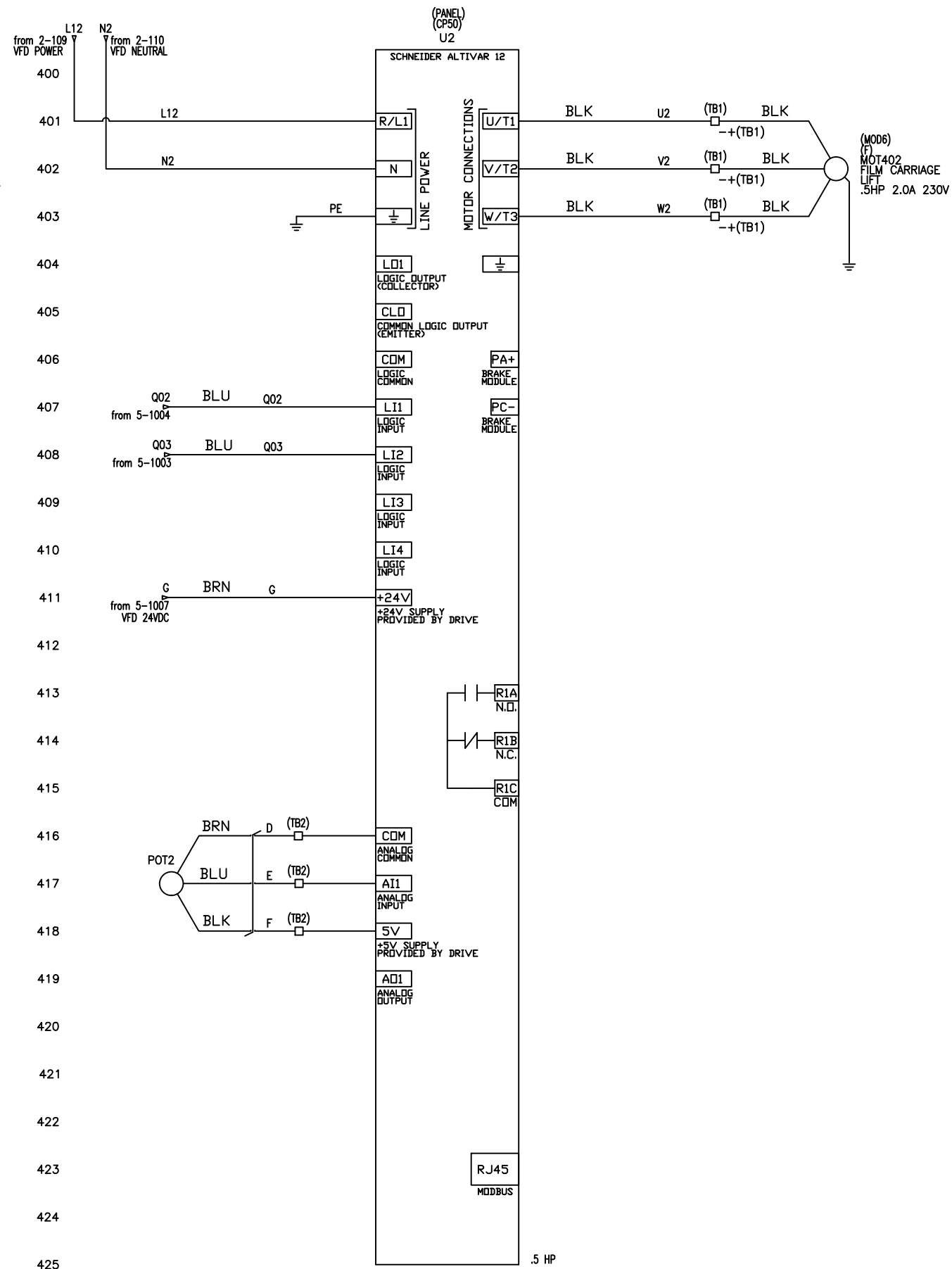
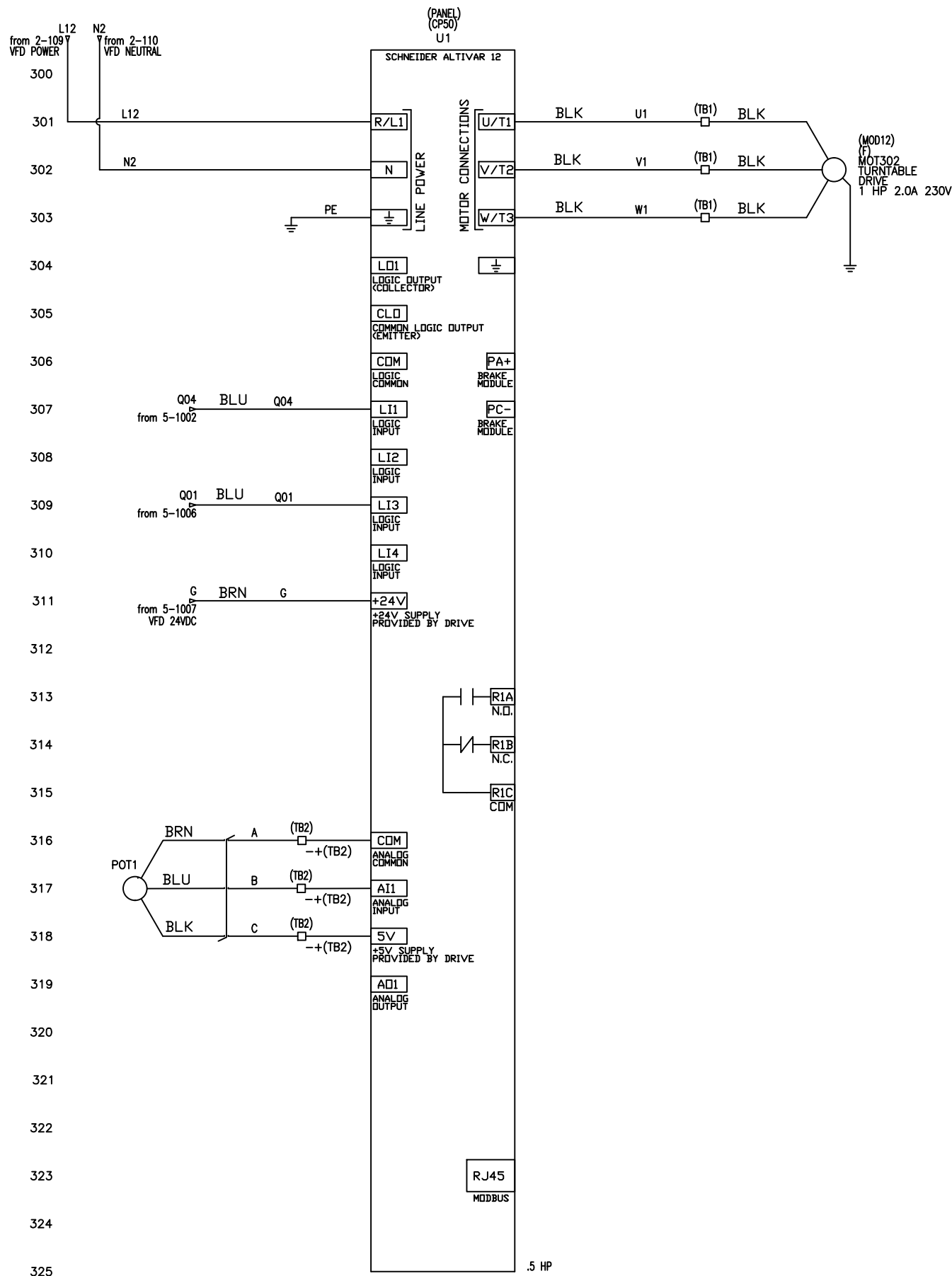
CUSTOMER DROP 115 VAC / SINGLE PHASE / 60 HZ / 60 AMP



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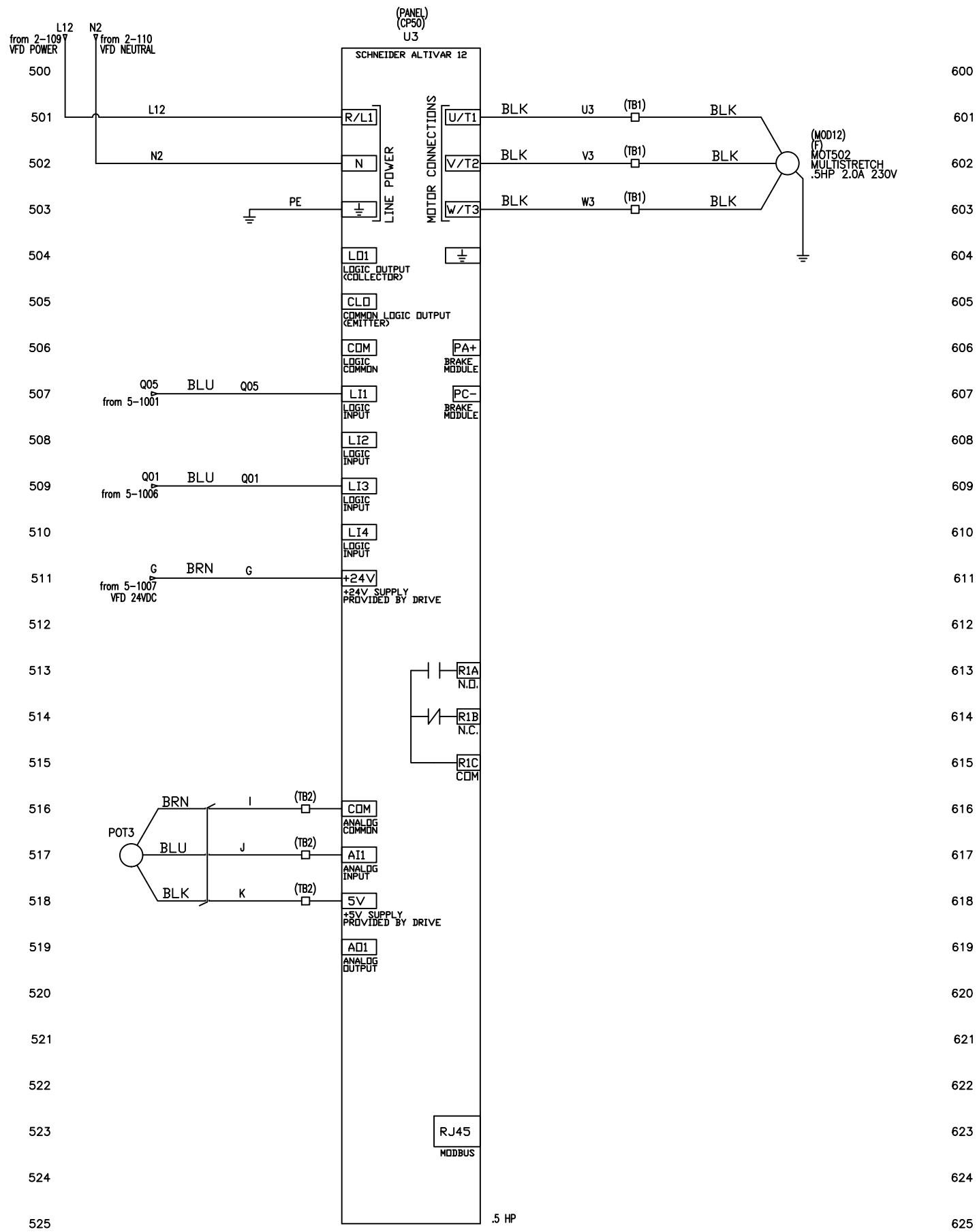


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120 VAC VFD'S

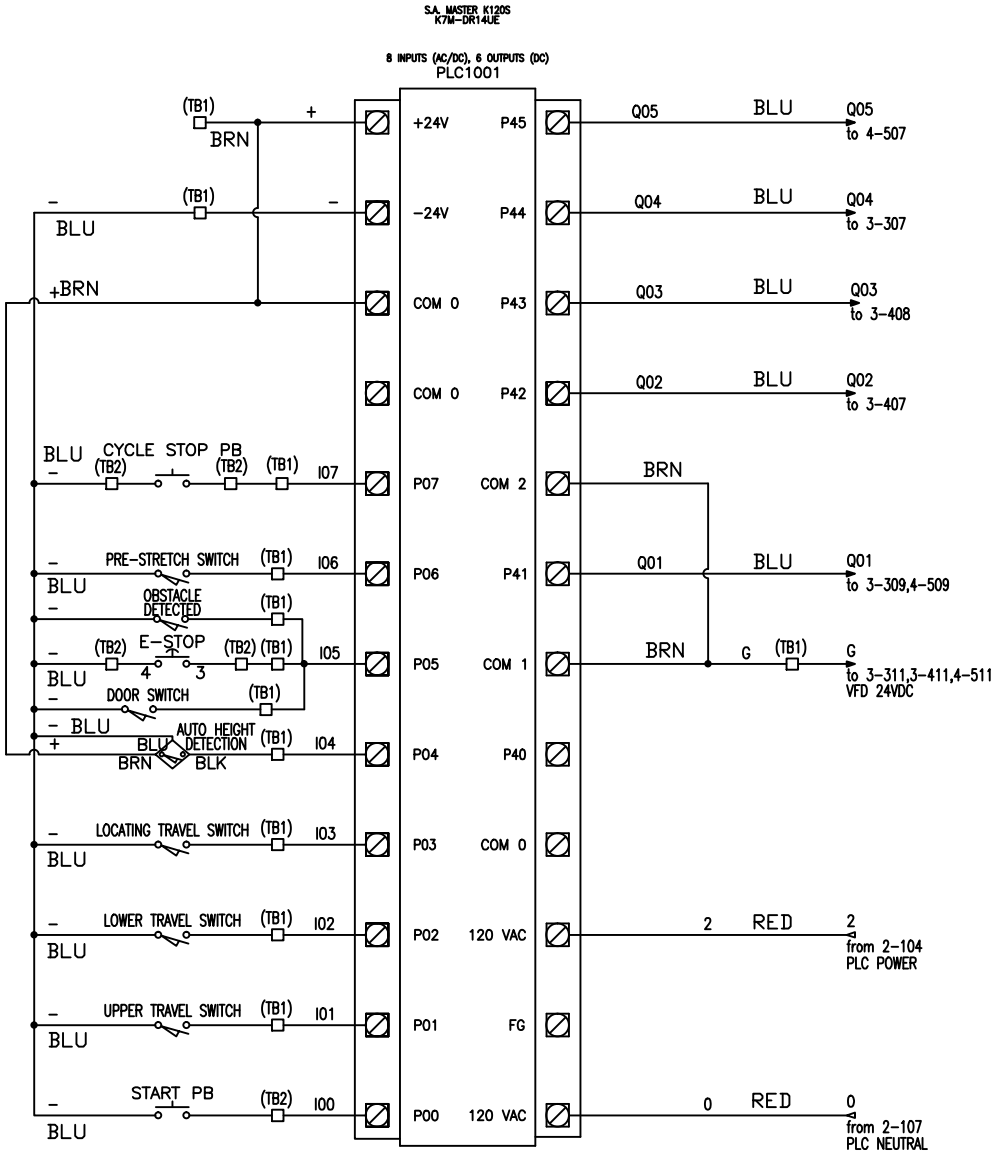
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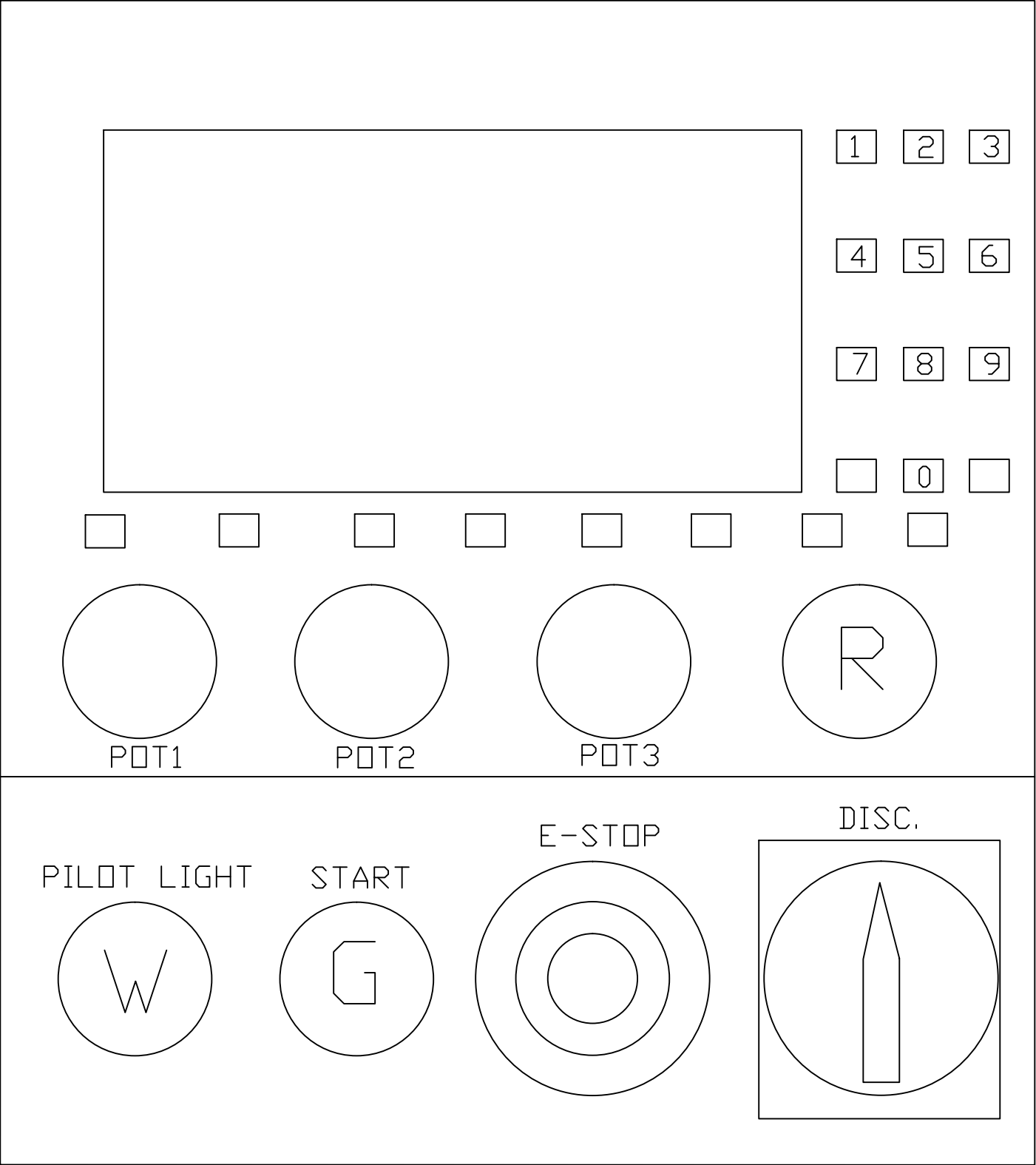


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U1	(TB1)	301
V1	(TB1)	302
W1	(TB1)	303
U2	(TB1)	401
V2	(TB1)	402
W2	(TB1)	403
U3	(TB1)	501
V3	(TB1)	502
W3	(TB1)	503
2	(TB1)	103
0	(TB1)	105
I01	(TB1)	1011
I02	(TB1)	1010
I03	(TB1)	1009
I04	(TB1)	1008
I05	(TB1)	1007
I05	(TB1)	
I06	(TB1)	1006
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OPERATOR STATION

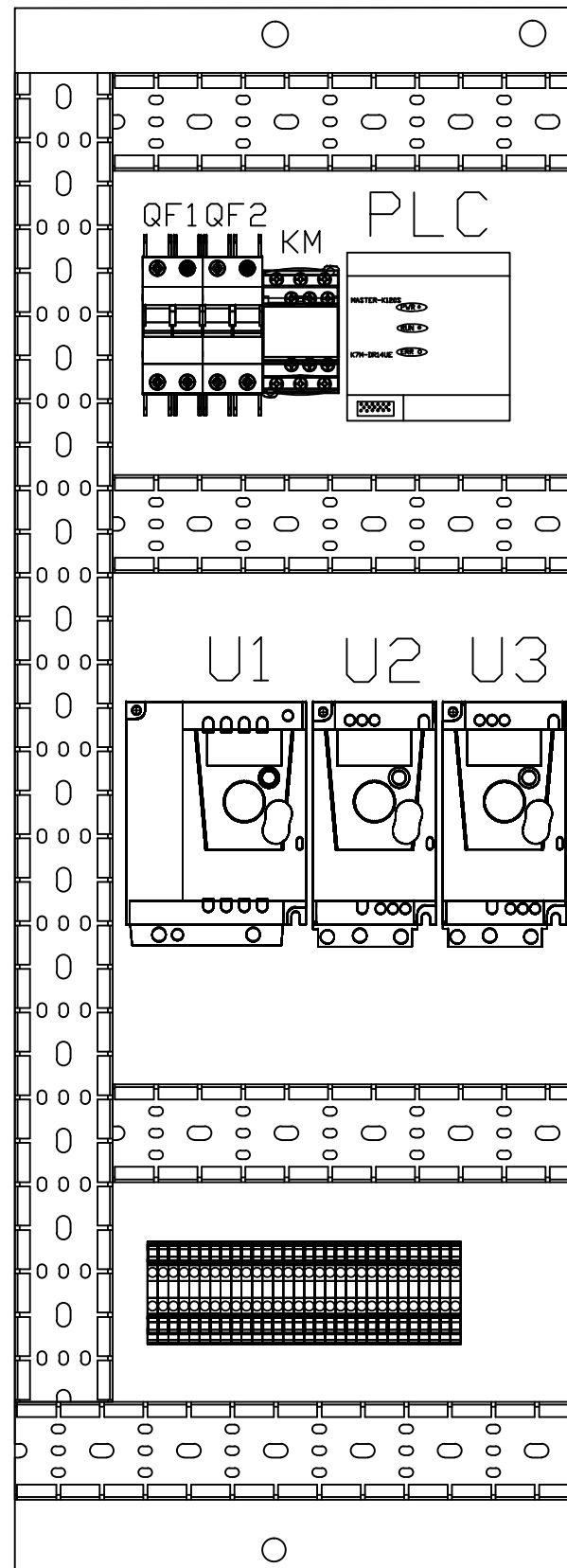


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R	(TB2)	102
N3	(TB2)	102
0	(TB2)	104
2	(TB2)	105
2	(TB2)	
5	(TB2)	105
100	(TB2)	1012
105	(TB2)	1004
107	(TB2)	1007
-	(TB2)	1004
-	(TB2)	1012
-	(TB2)	1007
A	(TB2)	316
B	(TB2)	317
C	(TB2)	318
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I	(TB2)	516
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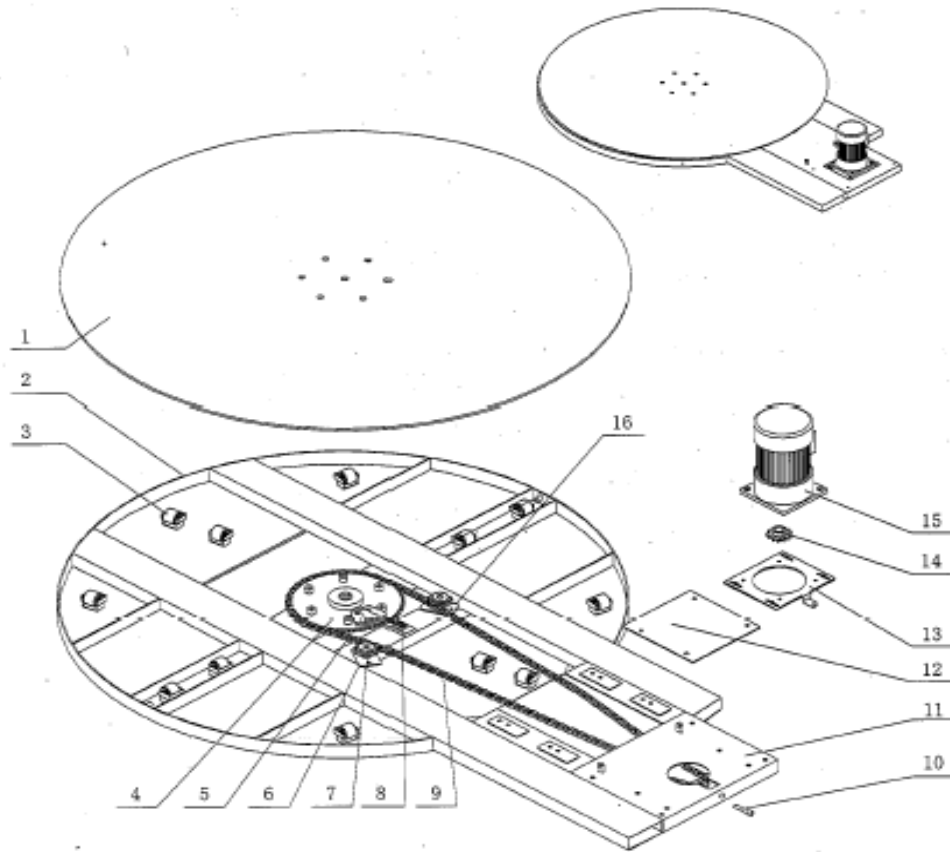
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Mechanical Drawings

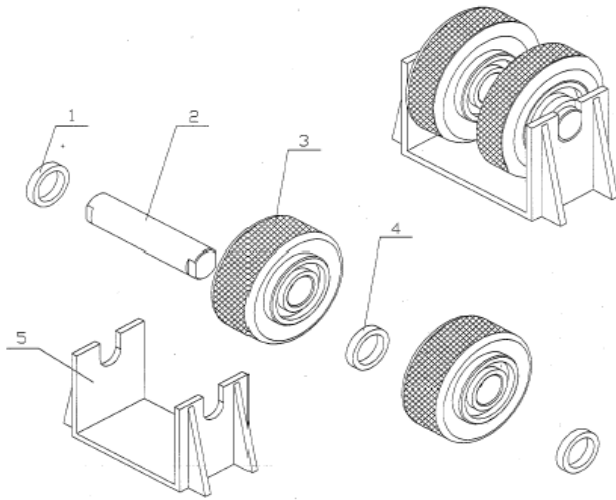
Base



Base

Part Ref	Description	Part #	Quantity
1	Turntable		1
2	Base		1
3	Casters	735499	12
4	Driven Sprocket	738806	1
5	Travel Switch Touch Block	738807	1
6	Tensioner	738810	1
7	Tension Sprocket	738975	2
8	Table Count Limit Switch	734379	1
9	Turntable Chain	0297067NO	1
10	Motor Jacking Screw		1
11	Cover Plate 1		1
12	Cover Plate 2		1
13	Main Motor Base		1
14	Main Motor Drive Sprocket	738977	1
15	Turntable Motor 750W 1:30	734351	1
16	Tension Wheel Base	738976	1
	Turntable Motor Quick Disconnect	737982	1

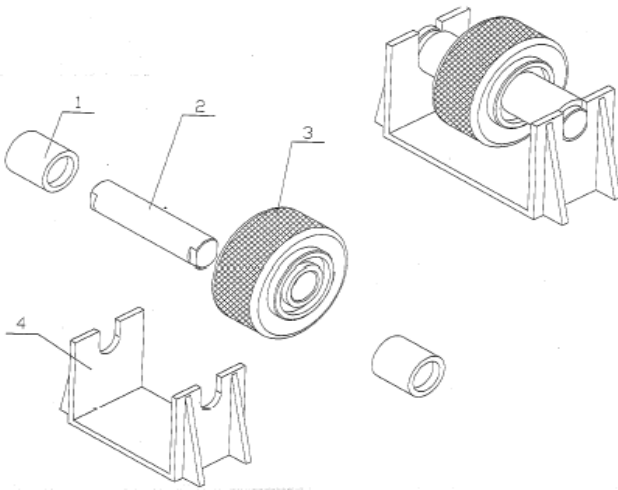
Double Casters



Double Casters

Part Ref	Description	Part #	Quantity
1	Space Ring	735426	2
2	Roller Shaft	735500	1
3	Roller Body	735499	2
4	Space Ring	735501	1
5	Roller Stand	Welded to Base Not Available For Sale	

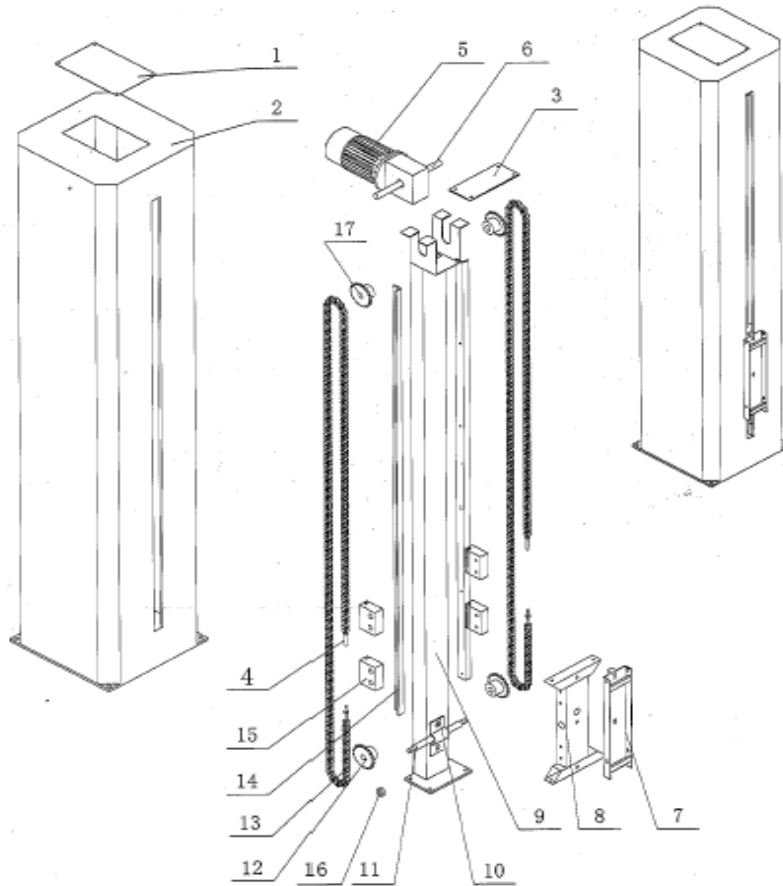
Single Casters



Single Casters

Part Ref	Description	Part #	Quantity
1	Space Ring	735502	2
2	Roller Shaft	735500	1
3	Roller Body	735499	1
4	Roller Stand	Welded to Base Not Available For Sale	

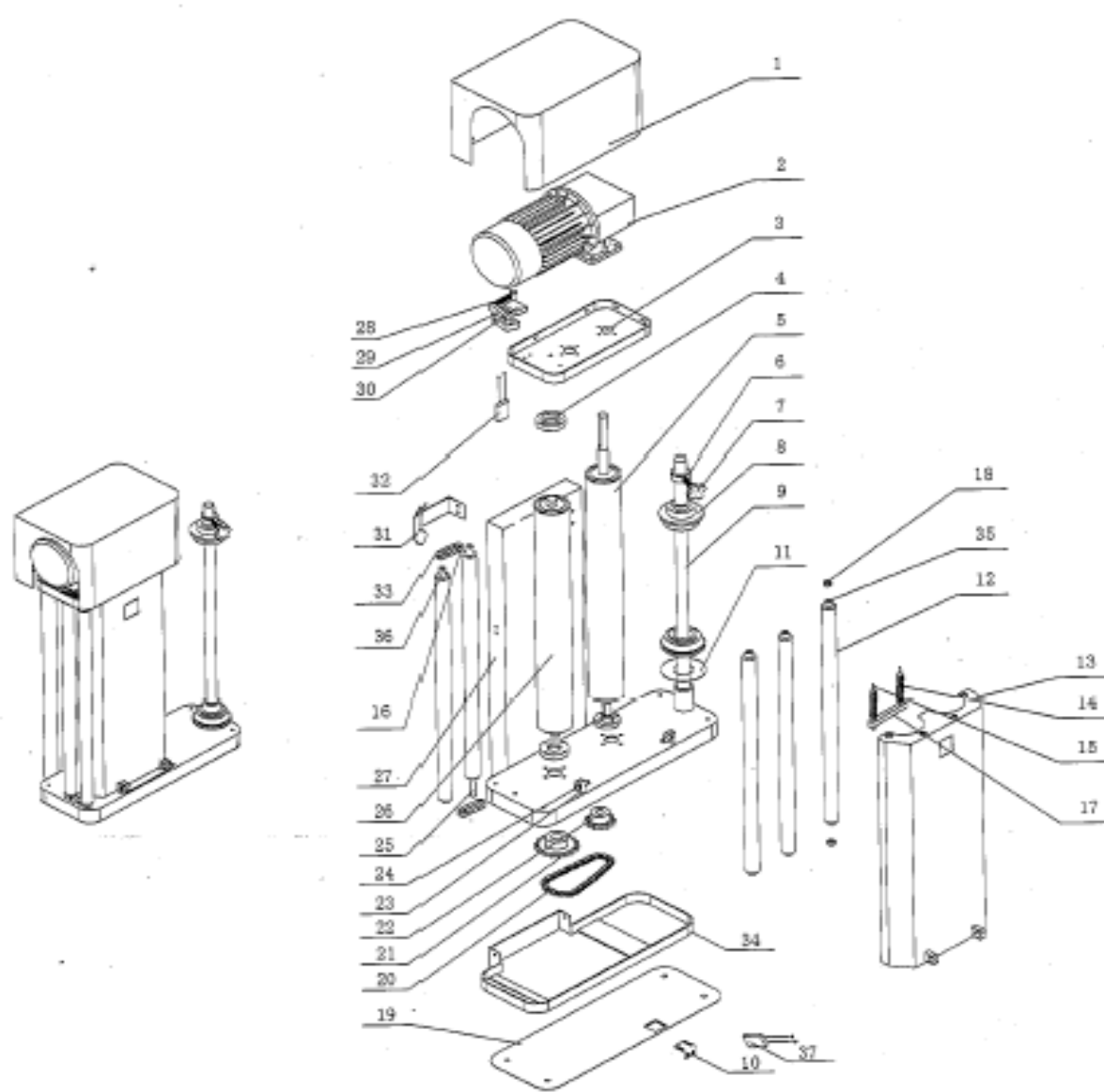
Tower



Tower

Part Ref	Description	Part #	Quantity
1	Tower Cover		1
2	Tower		1
3	Frame Setting Plate		1
4	Carriage Lift Chain Adjust Screw	738981	4
5	Tower Motor	734350	1
	Tower Gearbox	744999	1
	Tower Lift Kit (Motor, Gearbox, Shaft)	1011889	
6	Carriage Lift Motor Shaft	736968	1
7	Transition Frame	748439	1
8	Lifting Frame	748440	1
9	Tower Frame		1
10	Driven Shaft Fixing Buckle	748441	1
11	Carriage Lift Driven Shaft	738980	1
12	Carriage Lift Driven Sprocket	738979	2
13	Carriage Lift Chain (8' Tower)	0364241NO	2
	Carriage Lift Chain (9' Tower)	0364242NO	2
14	Slip Track		1
15	Slip Block	738982	4
16	Bearing	739980	2
17	Motor Sprocket	738978	2
18	Lower Bottom Guard Panel	739553	1
19	Middle Side Guard Panel	739554	1

Carriage



Carriage

Part Ref	Description	Part #	Quantity
1	Motor Cover	735671	1
2	Pre-stretch Motor	745000	1
	Pre-stretch Gearbox	735672	1
	Pre-stretch Kit (Motor and Gearbox)	1011893	1
3	Pre-stretch Upper Cover	735673	1
4	Bearing Base	735674	3
4.5	Bearing	741616	3
5	Pre-Stretch Roller	735675	1
6	Tightening Ring	735676	1
7	Tightening Scre	735677	1
8	Film-Locating Plate	735678	2
9	Film Shaft	735679	1
10	Micro-Active Switch Frame	735680	1
11	Locating Plate	735681	1
	Retaining Ring	736040	1
12	Transition Roller Kit	735682	5
13	Transition Roller Seat	735683	1
14	Compression Spring	735684	2
	Door Latch Kit (Spring, Pin, Rail)	1011894	
15	Locating Pin	735685	2
16	Right Connecting Block	735686	2
17	Rail	735687	1
18	Bearing (Part of #12 Kit)		10
19	Bottom Coverplate	735689	1
20	Carriage Chain	735690	1
21	Driven Sprocket	735691	1
22	Drive Sprocket	735692	1
23	Lower Hinge	735693	1
24	Hinge Pin	735694	2
25	Swing Support Shaft	735695	1
26	Main Roller	735696	1
27	Lifting Body	735697	1
28	Tension Spring	735698	1
29	Micro-Active Switch Touch Block	735699	1
30	Micro-Active Switch	735700	1
31	Travel Switch Touch Block	735701	1
32	Top Load Photoeye	735702	1
33	Left Connecting Block	735703	2
34	Protection Frame	735704	1
35	Transition Roller (Part of #12 Kit)		3
36	Swing Shaft (Short)	735706	1
37	Micro-Active Switch	738183	1
	Carriage Roller Door	735683	1

Electrical BOM

Description	Part #	Qty
PLC MASTER K7M-DR14UEMASTER PLC FOR SENTRY MACHINE	734381	1
VFD'S		
VFD SCHNEIDER 1/2 HP AC DRIVE 120V SINGLE PHASE	732691	2
VFD SCHNEIDER 1 HP AC DRIVE 120V SINGLE PHASE	732692	1
CIRCUIT BREAKERS		
CBRK EATON CURVE, 3 AMP, 2 POLE, UL 1077 CBRK	735971	1
CBRK EATON CURVE, 10 AMP, 2 POLE, UL 1077 CBRK	735972	1
E-STOP		
PB TELEMECANIQUE MUSHROOM HEAD NON-ILLUMINATED PUSHBUTTON	019323	1
PB TELEMECANIQUE ON CONTACT BLOCK 1 N.O.	016211	1
PB TELEMECANIQUE1NO CONT (ORION 014156)	706659	1
START P.B.		
SENS SQUARE D GREEN PB NON-ILLUMINATED	734380	
PB TELEMECANIQUE ON CONTACT BLOCK 1 N.O.	016211	1
INDICATOR LIGHT		
PB SQUARE D 2MM ILLUMINATED INDICATOR	734382	1
MCR		
SERV TELEMECANIQUE Contactor CEI Non-Reversing; 3Poles; 2HP@200/240VAC	014201	1
AUTO HEIGHT P.E. (STD)		
SENS PEPERL IR SENSOR SENTRY	734385	1
AUTO HEIGHT P.E. (DARK LOAD)		
SENS SICK DARK LOAD PE, 24VDC, QD	731972	1
CABLE (Required for Conversion when ordering 731972)	729580	1
PE MOUNT (Required for Conversion when ordering 731972)	322602NO	1
CARRIAGE OBSTACLE DETECT SWITCH		
SENS SWITCH FOR CARRIAGE DETECT SENTRY	735700	1
REV COUNT LIMIT SWITCH (UNDER TABLE)		
SENS SQUARE D LIMIT SWITCH FOR SENTRY MACHINE	734379	1
CARRIAGE UPPER AND LOWER LIMIT SWITCH		
SENS SQUARE D LIMIT SWITCH FOR SENTRY MACHINE	734379	2
QD FOR REV COUNT LIMIT SWITCH		
CONN EATON, FEMALE, 4-PIN, STRAIGHT, SCREW-TERM, PLASTIC, FIELD	736696	1
CONN EATON, MALE, 4-PIN, STRAIGHT, SCREW-TERM, PLASTIC, FIELD	736697	1
CARRIAGE DOOR SWITCH		
SENS SWITCH FOR CARRIAGE DETECT SENTRY	738183	1
10K POT		
TERM HONEYWELL 10K POTENTIOMETER	737695	1
POTENTIOMETER KNOB	737694	1
HMI		
ORION SENTRY CONTROL PANEL HMI	734725	1
POWER CORD		
FLX CONN MID-STATE 15 FT 14/3 SJTOWPOWER CORD WITH 15A	019429	1
DISCONNECT SWITCH (LOCKABLE)		
SCHNEIDER ELECTRIC	019401	1
PANEL ACCESS KEY		
ORION SENTRY PANEL ACCESS KEY	735586	1

