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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:

1) Model Flex Stretchwrapper

2) Serial Number

Built in 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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Copyright protection subsists from the time the work is created in fixed form. The copyright in the work of authorship immediately becomes the property of the author who created the work (Pro Mach.) Only the author or those deriving their rights through the author can rightfully claim copyright.
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 Flex Stretchwrapper. 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.
• DO NOT use steps or stands that allow anyone to reach over guards.
• 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 in the packaging 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 Flex Stretchwrapper.

- 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 system 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 Flex Stretchwrapper.

- 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 3-phase 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, as shown below, while performing maintenance.
- Personnel should pay careful attention to all devices that may be powered or capable of motion, such as conveyors and pneumatic devices.
- Release or block all stored energy devices (hydraulic or pneumatic) that may present a danger when working with the system. Before working with pneumatic devices, shut off the air supply and purge the air lines.
- 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, DO LOCK OUT/TAG OUT.
Pneumatic and Vacuum Systems

To avoid hazards of moving mechanisms, pinch points and other personal injuries, the main compressed air supply valve for the system shall be locked out & tagged as a safety precaution during entry and maintenance to the system.

1. To accomplish this, turn the Main Air Supply valve to the "OFF" position and install a personal locking device through the padlock hole on the valve handle.

2. Also 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. Qualified personnel shall vent any stored or accumulated air in pneumatic/vacuum devices before working on them. Check appropriate equipment manuals on exact procedures.

To re-supply compressed air to the equipment, a qualified person shall conduct visual inspections, as necessary, to verify that mechanisms are properly connected, as well as all tools and other objects have been removed so that equipment can safely operate. Personnel exposed to pneumatic/vacuum hazard areas 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 main air supply valve is turned 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, **DO 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.

1. Carefully insert the forks into the lifting tubes to the maximum possible depth. Depending on the model, a forklift access may be either at the tower end of the machine frame, the tower end or both. Look for the forklift tube access stickers shown below.

![Fork Tube Access Sticker](image)

2. Lift the machine (or other part of system) only to the necessary height to move it with no bouncing or friction on the floor.

3. Sit the machine down assuring uniform contact with the floor, which is necessary to ensure correct and smooth operation.

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.

**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 in the envelope attached to the panel box.

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 level 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).
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2. System Description

Machine Specifications

Utilities
- 115 / 1ph / 60hz 20 Amp Service

Standard Speed
- 16 Rpm Variable Tower Speed Vfd Controlled Motor**

Drive
- Heavy Duty Chain Drive
- Electronically Adjustable Acceleration/deceleration And Running Speeds (At Vfd)
- Positive Alignment Feature (True Home Position)

Control Features
- Nema 12 Control Panel
- User Friendly Interface
- Variable Speed Film Carriage Up/ Down Control
- Film Carriage Manual Jog Functionality
- Photocell For Automatic Load Height Detection
- Rotary Arm/ Table Jogging
- Semi-automatic Reinforce Wrap Feature

Film Delivery
- Instathread Full Corner Compensating Powered Film Drive.
- 260 % Stretch From The Factory. 20" Film Tension Delivery System. **optional 30"
- Full Authority, Corner Compensating, Vfd Powered Prestretch
- Electronic Film Tension Control Adjustment On The Panel < Or = 90 Ga Film Capacity. Higher Gauge Film Requires A Heavy Film Upgrade.
- Film Carriage Elevator Drive
- High Strength Belt Lift.
- Variable Frequency Drive Motor
- Multi-point Uhmw Precision Carriage Guidance System

Structural Features
- 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

Insert Machine Floorplan Here.
System Operation Contents

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3. System Operation

Operating Procedures

Control Panel

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 the 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.
Loading The Film

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

1. Disconnect power (turn off power switch).
2. Swing up the top mandrel spool.
3. Put the roll of film on the bottom mandrel.
4. Install the top mandrel on top of the roll to prevent upward movement.
5. Pull the handle marked PULL TO OPEN to open film distributor cradle.
6. Pass the roped tail of the film through opening.
7. Close the film distributor cradle by pushing bar marked PUSH TO CLOSE.
8. When the film feeding is completed turn the power switch on.
9. Peel off the first few winds of the film (multistretch will run due to displacement of the dancer roller) and fix the film end onto the load—or film clamp if so equipped.

The system is now ready to begin the first wrapping cycle.

The film carriage is equipped with a magnetic switch that detects when the carriage threading door is open. When opened, it will set off an alarm on the HMI and prevent the carriage from moving. It will also prevent a wrap cycle from latching, however it will allow the film feed motor to still operate. You must turn off the power switch to properly prevent the possibility of the film motor running accidentally.
How to Start and Shut Down Your Wrapping System

**POWER SWITCH**

Located on the panel door, the lockable power switch has two settings:

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

**START AND EMERGENCY STOP SWITCHES**

- **The** **START** switch is used to start the cycle once the load is available.
- **The** cycle may be stopped at anytime by pressing the **STOP** button.

The FLEX series machines are engineered to give the operator different levels of operation, the front panel or USER settings, and MENU DRIVEN parameters.

The front panel controls have the majority of needed commands and can be accessed at any time.

The menu driven parameters offer even more flexibility and protection from being accidentally changed during normal operation.
**HMI Screens**

**Main Screen**

This is the Main screen used for primary functions of the machine.

*Figure 3-2*

*The Main Screen*

![Main Screen Diagram]

**Table 3-1. The Main Screen Button Descriptions**

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYCLE PAUSE</td>
<td>Press this button to pause the current cycle. Press this button again to continue.</td>
<td>PRESS TO REMOVE CYCLE PAUSE</td>
</tr>
<tr>
<td>PRESS FOR TOWER LOW SPEED</td>
<td>Press this button to toggle between high and low tower speed.</td>
<td>PRESS FOR TOWER HIGH SPEED</td>
</tr>
<tr>
<td>JOG FUNCTIONS</td>
<td>Press this button to go to the Jog screen.</td>
<td></td>
</tr>
<tr>
<td>HOLD FOR REINFORCE WRAPS</td>
<td>Press and hold this button to reinforce wrap the load. Release this button to stop reinforce wrapping.</td>
<td></td>
</tr>
<tr>
<td>GO TO FILM TENSION SETTINGS</td>
<td>Press this button to go to the Film Tension Settings Screen.</td>
<td></td>
</tr>
<tr>
<td>GO TO WRAP MENU SETTINGS</td>
<td>Press this button to go to the Wrap Menu Settings Screen.</td>
<td></td>
</tr>
<tr>
<td>CYCLE RESET</td>
<td>Press this button to reset the system. Press this button before restarting.</td>
<td></td>
</tr>
<tr>
<td>GO TO MENU SCREEN</td>
<td>Press this button to go to the Menu Screen.</td>
<td></td>
</tr>
</tbody>
</table>
The Menu Screen

This is the Menu screen. This screen allows you to navigate the HMI screens.

Figure 3 - 3
The Menu Screen

Table 3-2. The Menu Screen Button Descriptions

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO TO CARRIAGE SETTINGS</td>
<td>Press this button to go to the Carriage Settings Screen.</td>
</tr>
<tr>
<td>GO TO ALARMS &amp; MESSAGES</td>
<td>Press this button to go to the Alarms &amp; Messages Screen.</td>
</tr>
<tr>
<td>GO TO WRAP MENU SETTINGS</td>
<td>Press this button to go to the Wrap Menu Settings Screen.</td>
</tr>
<tr>
<td>GO TO ROPING</td>
<td>Press this button to go to the Roping Screen.</td>
</tr>
<tr>
<td>GO TO FACTORY SETTINGS</td>
<td>Press this button to go to the Factory Settings Screen.</td>
</tr>
<tr>
<td>GO TO MAIN SCREEN</td>
<td>Press this button to go to the Main Screen.</td>
</tr>
</tbody>
</table>
The Alarm Panel

This is the Alarm Panel. This screen allows you to monitor alarm messages generated by the machine. You may also reset the machine or go to the menu or main screens.

![The Alarm Screen](image)

Table 3-3. The Alarm Screen Button Descriptions

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲</td>
<td>Press this button to move the cursor to the alarm above the currently highlighted alarm message.</td>
</tr>
<tr>
<td>▼</td>
<td>Press this button to move the cursor to the alarm below the currently highlighted alarm message.</td>
</tr>
<tr>
<td>CYCLE RESET</td>
<td>Press this button to reset the system. Press this button before restarting.</td>
</tr>
<tr>
<td>GO TO MENU</td>
<td>Press this button to go to the Menu Screen.</td>
</tr>
<tr>
<td>GO TO MAIN SCREEN</td>
<td>Press this button to go to the Main Screen.</td>
</tr>
</tbody>
</table>
The Jog Component Screen

This is the Jog screen (may vary.) From this screen, you may jog the tower or turntable and jog the carriage up or down. If equipped, you may jog the film brush and film clamp.

Table 3-4. The Jog Component Screen Button Descriptions

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOG TOWER/ TABLE</td>
<td>Press and hold this button to jog the tower.</td>
</tr>
<tr>
<td>JOG CARRIAGE UP</td>
<td>Press this button to jog the carriage upwards. The carriage move slowly upwards until the operator releases the jog button.</td>
</tr>
<tr>
<td>JOG CARRIAGE DOWN</td>
<td>Press this button to jog the carriage downwards. The carriage move slowly downwards until the operator releases the jog button.</td>
</tr>
<tr>
<td>JOG FILM CLAMP</td>
<td>Press this button to jog the film clamp open or closed.</td>
</tr>
<tr>
<td>JOG FILM BRUSH AND CUTTER</td>
<td>Press this button to jog the film brush and cutter in or out.</td>
</tr>
<tr>
<td>ESC</td>
<td>Press this button to go to the previous screen.</td>
</tr>
</tbody>
</table>
The Carriage Jog Screen

This is the Carriage Jog Screen. From this screen you may choose the speed at which the carriage moves upwards or downwards. A faster move will create less film overlap, while a slower move will create more film overlap. You may also jog the carriage up or down, reset the machine, or go to the Menu screen.

![The Carriage Jog Screen](image)

Table 3-5. The Carriage Jog Screen Button Descriptions

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP SPEED</td>
<td>Press this button to change the speed of the carriage on the upward move.</td>
</tr>
<tr>
<td>DOWN SPEED</td>
<td>Press this button to change the speed of the carriage on the downward move.</td>
</tr>
<tr>
<td>JOG CARRIAGE UP</td>
<td>Press this button to jog the carriage upwards. The carriage move slowly upwards until the operator releases the jog button.</td>
</tr>
<tr>
<td>JOG CARRIAGE DOWN</td>
<td>Press this button to jog the carriage downwards. The carriage move slowly downwards until the operator releases the jog button.</td>
</tr>
<tr>
<td>RESET CYCLE</td>
<td>Press this button to reset the machine. Press this button prior to starting as part of the normal startup procedure.</td>
</tr>
<tr>
<td>BACK TO MENU SCREEN</td>
<td>Press this button to go to the Menu Screen.</td>
</tr>
</tbody>
</table>
Factory Settings Screen

This is the Factory Settings Screen. You may choose individual settings or restore the machine to factory default settings. From this screen, you may also choose to enable/disable the film fault alarm or enable/disable the auto height feature.

![The Factory Settings Screen](image_url)

**Figure 3 - 7** The Factory Settings Screen

**Table 3-6. The Factory Settings Screen Button Descriptions**

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT END OF CYCLE POSITION</td>
<td>Press this numeric display to enter the position when the cycle ends. A higher number increases the delay for the end of the cycle.</td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>AUTO HEIGHT DELAY TIMER</td>
<td>Press this numeric display to enter the time delay in 100ths of a seconds where the auto height position stops.</td>
</tr>
<tr>
<td>123</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3-6. The Factory Settings Screen Button Descriptions (Continued)

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TENSION ENGAGED DELAY TIMER</td>
<td>Press this numeric display to enter the delay for the film tension engagement.</td>
</tr>
<tr>
<td>123</td>
<td></td>
</tr>
<tr>
<td>FILM FAULT DELAY TIMER</td>
<td>Press this numeric display to enter the delay for the film fault. This is the amount of time before the film fault is tripped.</td>
</tr>
<tr>
<td>123</td>
<td></td>
</tr>
<tr>
<td>SLOW DOWN POSITION FOR TOWER</td>
<td>Press this numeric display to enter the slow down position of the tower.</td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>RESTORE FACTORY DEFAULTS</td>
<td>Press this button to restore the settings found on this screen back to the factory default settings. This can be useful when the settings where changed to a setting that does not work properly.</td>
</tr>
<tr>
<td>BACK TO MENU SCREEN</td>
<td>Press this button to go to the Menu screen.</td>
</tr>
<tr>
<td>PRESS TO TURN OFF FILM FAULT</td>
<td>Press this button to choose to enable or disable the film fault.</td>
</tr>
<tr>
<td>PRESS TO TURN ON FILM FAULT</td>
<td>PRESS TO TURN ON FILM FAULT</td>
</tr>
<tr>
<td>PRESS TO TURN OFF AUTO HEIGHT</td>
<td>Press this button to turn the carriage autoheight on or off.</td>
</tr>
<tr>
<td>PRESS TO TURN ON AUTO HEIGHT</td>
<td>PRESS TO TURN ON AUTO HEIGHT</td>
</tr>
<tr>
<td>GO TO MAIN SCREEN</td>
<td>Press this button to go to the Main screen.</td>
</tr>
</tbody>
</table>
**Restore Settings Popup Screen**

This popup displays when the Restore Settings Screen is pressed. The operator must verify that they intend to reset the machine to the factory defaults by pressing the Restore Factory Defaults button on this popup screen.

![Figure 3 - 8 The Restore Settings Popup Screen](image)

**Table 3-7. The Restore Settings Screen Button Descriptions**

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESTORE FACTORY DEFAULTS</td>
<td>Press this button to delete the currently entered factory settings and replace them with the original factory default settings.</td>
<td></td>
</tr>
<tr>
<td>ESC</td>
<td>Press this button to go back to the previous screen.</td>
<td></td>
</tr>
</tbody>
</table>
The Roping Screen

This is the Roping Screen for models equipped with film roping. On this screen you may enable or disable film roping, jog the roping cylinder, or go to the Menu or Main screens.

**Figure 3 - 9**
The Roping Screen

![Roping Screen Diagram]

**Table 3-8. The Roping Screen Button Descriptions**

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROPING OFF</td>
<td>Press this button to turn the roping on or off.</td>
<td>ROPING ON</td>
</tr>
<tr>
<td>JOG ROPING CYLINDER</td>
<td>Press and hold this button to jog the roping cylinder. Release this button to stop the jog.</td>
<td></td>
</tr>
<tr>
<td>BACK TO MENU SCREEN</td>
<td>Press this button to go to the Menu screen.</td>
<td></td>
</tr>
<tr>
<td>GO TO MAIN PANEL</td>
<td>Press this button to go to the Main screen.</td>
<td></td>
</tr>
</tbody>
</table>
The Wrap Menu (D) Screen

This is the Wrap Menu screen for D models only. On this screen you may adjust the number of top and bottom wraps and enable either top or bottom wraps first.

Figure 3 - 10
The Wrap Menu Screen

Table 3-9. The Wrap Menu Screen Button Descriptions

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER OF TOP WRAPS 1</td>
<td>Press this button to set the number of top wraps applied to the load.</td>
<td></td>
</tr>
<tr>
<td>NUMBER OF BOTTOM WRAPS 1</td>
<td>Press this button to set the number of bottom wraps applied to the load.</td>
<td></td>
</tr>
<tr>
<td>PRESS TO WRAP BOTTOM FIRST</td>
<td>Press this button to toggle between top wraps and bottom wraps first.</td>
<td>PRESS TO WRAP TOP FIRST</td>
</tr>
<tr>
<td>GO TO MENU SCREEN</td>
<td>Press this button to go to the Menu Screen.</td>
<td></td>
</tr>
</tbody>
</table>
The Wrap Menu (A) Screen

This is the Wrap Menu screen for A models only. On this screen you may adjust the brush extend, the number of top and bottom wraps, and enable either top or bottom wraps first.

![Figure 3-11 The Wrap Menu Screen](image)

### Table 3-10. The Wrap Menu Screen Button Descriptions

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRUSH EXTEND TIME 12</td>
<td>Press this button to set the amount of time that the Brush is extended in seconds.</td>
<td></td>
</tr>
<tr>
<td>NUMBER OF TOP WRAPS 1</td>
<td>Press this button to set the number of top wraps applied to the load.</td>
<td></td>
</tr>
<tr>
<td>NUMBER OF BOTTOM WRAPS 1</td>
<td>Press this button to set the number of bottom wraps applied to the load.</td>
<td></td>
</tr>
<tr>
<td>ESC</td>
<td>Press this button to escape the screen.</td>
<td></td>
</tr>
</tbody>
</table>
Table 3-10. The Wrap Menu Screen Button Descriptions (Continued)

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS TO WRAP BOTTOM FIRST</td>
<td>Press this button to toggle between top wraps and bottom wraps first.</td>
<td>PRESS TO WRAP TOP FIRST</td>
</tr>
<tr>
<td>GO TO MAIN SCREEN</td>
<td>Press this button to go to the Main Screen.</td>
<td></td>
</tr>
</tbody>
</table>
The Film Settings Screen

This is the Film Settings Screen. This screen allows you to adjust settings relating to the film.

![The Film Settings Screen](image)

Table 3-11. The Film Settings Screen Button Descriptions

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO HEIGHT DELAY TIMER</td>
<td>Press the numeric display to enter the Auto Height Delay Timer.</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TENSION ENGAGED DELAY TIMER</td>
<td>Press the numeric display to enter the Tension Engaged Delay Timer.</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3-11. The Film Settings Screen Button Descriptions (Continued)

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILM FAULT DELAY TIMER 123</td>
<td>Press the numeric display to enter the Film Fault Delay Timer.</td>
<td></td>
</tr>
<tr>
<td>SLOW DOWN POSITION FOR TABLE 12</td>
<td>Press the numeric display to enter the Slow Down Position for the Table.</td>
<td></td>
</tr>
<tr>
<td>TURN ON FILM FAULT ALARM</td>
<td>Press this button to toggle between Film Fault Alarm On or Film Fault Alarm Off. This allows the operator to disable the film fault alarm.</td>
<td>TURN OFF FILM FAULT ALARM</td>
</tr>
<tr>
<td>TURN ON AUTO HEIGHT</td>
<td>Press this button to toggle between Auto Height On or Auto Height Off. This allows the operator to disable the Auto Height mode.</td>
<td>TURN OFF AUTO HEIGHT</td>
</tr>
<tr>
<td>INSTA CUT OPTIONS</td>
<td>Press this button to go to the Insta Cut Options Screen.</td>
<td></td>
</tr>
<tr>
<td>GO TO MAIN SCREEN</td>
<td>Press this button to go to the Main Screen.</td>
<td></td>
</tr>
</tbody>
</table>
The Insta Cut Screen

This is the Insta-Cut Screen. This screen is used for machines with insta-cut to control the brake and punch position. You may also enable or disable instacut from this screen.

![The Insta Cut Screen](image)

Table 3-12. The Insta Cut Screen Button Descriptions

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTA-CUT BRAKE POS</td>
<td>Press the numeric display to enter the Film Break Tension for the Insta Cut.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSTA-CUT PUNCH POS</td>
<td>Press the numeric display to enter the Punch Position</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TURN ON INSTA CUT</td>
<td>Press this button to toggle between Insta Cut On or Insta Cut Off. This allows the operator to disable the Insta Cut function.</td>
<td>TURN OFF INSTA CUT</td>
</tr>
<tr>
<td>GO TO MAIN SCREEN</td>
<td>Press this button to go to the Main Screen.</td>
<td></td>
</tr>
<tr>
<td>GO TO MENU SCREEN</td>
<td>Press this button to go to the Menu Screen.</td>
<td></td>
</tr>
</tbody>
</table>
The MIB Screen

This is the MIB screen. This page is useful primarily to repair personnel when troubleshooting the machine.

Table 3-13. The MIB Screen Button Descriptions

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZERO TRIM</td>
<td>Press this button to set the film tension to zero the film tension.</td>
</tr>
<tr>
<td></td>
<td>123</td>
</tr>
<tr>
<td>GAIN 2000 TO 3200</td>
<td>Press this button to set the maximum film tension.</td>
</tr>
<tr>
<td></td>
<td>1234</td>
</tr>
<tr>
<td>BROKEN FILM</td>
<td>Press this button to set the broken film watchdog timer. This is the amount</td>
</tr>
<tr>
<td></td>
<td>delay before the broken film alarm is triggered. The timer is in 100’s of</td>
</tr>
<tr>
<td></td>
<td>seconds. One second equals 100.</td>
</tr>
<tr>
<td></td>
<td>123</td>
</tr>
<tr>
<td>GO TO MAIN SCREEN</td>
<td>Press this button to go to the Main screen.</td>
</tr>
<tr>
<td>GO TO MENU SCREEN</td>
<td>Press this button to go to the Menu screen.</td>
</tr>
</tbody>
</table>
The Maintenance Screen

This is the Maintenance screen. This page is useful primarily to repair personnel when troubleshooting the machine.

**Figure 3 - 15**
The Maintenance Screen

![The Maintenance Screen](image)

**Table 3-14. The Maintenance Screen Button Descriptions**

<table>
<thead>
<tr>
<th>STATE 1</th>
<th>DESCRIPTION</th>
<th>STATE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS FOR MODEL A</td>
<td>Press this button to choose that this machine is a A model.</td>
<td></td>
</tr>
<tr>
<td>PRESS FOR MODEL D</td>
<td>Press this button to choose that this machine is a D model.</td>
<td></td>
</tr>
<tr>
<td>PRESS TO TURN BACKUP OFF</td>
<td>Press this button to enable backup functionality.</td>
<td>PRESS TO TURN BACKUP ON</td>
</tr>
<tr>
<td>PRESS TO TURN FENCE ON</td>
<td>Press this button to allow the ability to have safety fencing sensors.</td>
<td>PRESS TO TURN FENCE OFF</td>
</tr>
<tr>
<td>ESC</td>
<td>Press this button to go to the previous screen.</td>
<td></td>
</tr>
</tbody>
</table>
Troubleshooting Contents

Troubleshooting ................................................................. 4-1
Carriage Obstacle Detect Error Recovery ............................... 4-3
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>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Will Not Start</td>
<td>• No air pressure</td>
<td>• Check air dump valves and air filters</td>
</tr>
<tr>
<td></td>
<td>• Disconnect switches are OFF</td>
<td>• Turn disconnect switches ON</td>
</tr>
<tr>
<td></td>
<td>• Fault or overload detected</td>
<td>• Reset</td>
</tr>
<tr>
<td></td>
<td>• No power</td>
<td>• Check to see if machine is on and receiving power</td>
</tr>
<tr>
<td></td>
<td>• Emergency stop is activated</td>
<td>• Deactivate emergency stop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reset control panel</td>
</tr>
<tr>
<td>Any Thermal Overload</td>
<td>• The overload contact on the motor starter is open</td>
<td>• Check overload indicator. If it is tripped, Reset the overload.</td>
</tr>
<tr>
<td></td>
<td>• The rated amperage draw on the motor nameplate is higher than the motor</td>
<td>• Reset amperage setting on the motor starter to equal the rated amperage draw of the motor</td>
</tr>
<tr>
<td></td>
<td>starter is set at</td>
<td>• Check all fuses on the incoming lines to the motor starter</td>
</tr>
<tr>
<td></td>
<td>• Bad fuse</td>
<td>• Check current draw at motor leads</td>
</tr>
<tr>
<td></td>
<td>• The motor is drawing too much amperage</td>
<td>• If the motor is mounted to another component, remove the motor and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>check current draw</td>
</tr>
</tbody>
</table>
<pre><code>                            |                                                                               | • Call an electrician to determine if motor is bad. Replace if necessary |
</code></pre>

Table 4-1. Troubleshooting Chart
Table 4-1. Troubleshooting Chart (Continued)

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
</table>
| Air Cylinders/ Clamps/ Don’t Extend or Retract | • Pneumatic pressure is too low or not available  
• The cylinder is weak or not functioning | • Check that pneumatic pressure is available to the machine. Ensure that the pressure is at least 60 psi.  
• Check the cylinder to ensure it is functioning properly. |
Carriage Obstacle Detect Error Recovery

1. When the obstacle detect error occurs, the brake must be released.

2. To release the brake, pull outward on the carriage strap on the front side of the tower until the brake releases.

3. Align the limit switch on the inside of the tower with the center of the strap.

4. Reset and restart, when ready.
Maintenance Contents

Maintenance

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Tower Raceways Maintenance ............................................... 5-3
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RTA Series ............................................................................. 5-7
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 15 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

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

Note: For most applications, Mobil One Synthetic 75/90 gear lube is a preferred lubricant.
Ring Bearing Maintenance (*optional)

The ring bearing should be re-lubricated internally and externally.

Internally: Locate ONE of the four grease fittings located directly on the ring bearing. Pump one full shot of grease into only ONE of the fittings every six months. This should be plenty of lubrication for most applications. Pumping too much grease into the ring bearing can destroy the ring bearing by dislocating the rubber grease seal.

Externally: by lubricating and wiping the chain drive with oily cloth. The frequency of lubrication depends entirely upon the usage of the machine and environment in which the machine is placed (dust, moisture etc.). Machines working under extremely dirty conditions should be lubricated every 400 operating hours but at minimum, every 2 months. Longer lubrication intervals may occur only when machine is working under very clean and dry conditions but should be not be longer than 6 months.

List of recommended lubricants for the ring bearing lubrication.

<table>
<thead>
<tr>
<th>MANUFACTURER</th>
<th>LUBRICANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Energrease LS2</td>
</tr>
<tr>
<td>Castrol</td>
<td>Speeroll AP2</td>
</tr>
<tr>
<td>Esso</td>
<td>Beacon 2</td>
</tr>
<tr>
<td>Gulf</td>
<td>Crown Grease 2</td>
</tr>
<tr>
<td>Mobil</td>
<td>Mobilus 2</td>
</tr>
<tr>
<td>Shell</td>
<td>Avania Grease R2</td>
</tr>
<tr>
<td>Texaco</td>
<td>Glissando FT 2</td>
</tr>
<tr>
<td>Valvoline</td>
<td>LB-2</td>
</tr>
</tbody>
</table>
Tower Raceways Maintenance

The film distributor (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 stretch chain, wipe it with an oily cloth once a service quarter.

When machine is working in a dusty and damp environment, it may be necessary to repeat the cleaning operation more often.

Regarding chain lubricants please 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.

**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 5-3. PM Frequency

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>PERIOD</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>LPH</td>
<td>(Hour)</td>
</tr>
<tr>
<td>96</td>
<td>LPS</td>
<td>(Shift)</td>
</tr>
<tr>
<td>192</td>
<td>LPD</td>
<td>(Day)</td>
</tr>
<tr>
<td>5760</td>
<td>LPM</td>
<td>(Month)</td>
</tr>
<tr>
<td>17,280</td>
<td>LP3M</td>
<td>(3Months)</td>
</tr>
<tr>
<td>34,560</td>
<td>LP6M</td>
<td>(6Months)</td>
</tr>
</tbody>
</table>

All general information about machine maintenance is based on normal machine working conditions: indoor, moderate dust and low moisture environment, and maximum rotation of 15 RPM. They should be regarded as guidelines, reviewed and corrected according to requirements of actual use and conditions.

All H&L Standard Series

5,760 Loads or one month

- Inspect rubber stretch rollers. Clean as needed per instructions in manual.
- Inspect belt condition. Adjust as needed.

17,280 Loads or three months.

- Inspect under turntable. Clean debris as needed.
- Inspect turntable support casters for good condition.
- Inspect turntable chain. Apply a light coating of lubricant per instructions in manual.
- Inspect prestretch chain and belt. Tension as needed. Apply a light coating of lubricant per instructions in manual.
All H&L Heavy Duty (Ring Bearing) Series

5,760 Loads Or One Month

• Inspect rubber stretch rollers. Clean as needed per instructions in manual.
• Inspect belt condition. Adjust as needed.

17,280 Loads or three months.

• Inspect under turntable. Clean debris as needed.
• Inspect turntable support casters for good condition.
• Inspect turntable chain. Apply a light coating of lubricant per instructions in manual.
• Inspect prestretch chain and belt. Tension as needed. Apply a light coating of lubricant per instructions in this manual.

34,560 Loads or 6 months.

• Lubricate ring bearing per instructions in this manual.

HPA LPA Series

5,760 Loads or one month

• Inspect rubber stretch rollers. Clean as needed per instructions in manual.
• Inspect belt condition. Adjust as needed.

17,280 Loads or three months.

• Inspect under turntable. Clean debris as needed.
• Inspect turntable support casters for good condition.
• Inspect turntable chain. Apply a light coating of lubricant per instructions in manual.
• Inspect prestretch chain and belt. Tension as needed. Apply a light coating of lubricant per instructions in manual.
• Check the cutter wire for excessive buildup. Replace if kinked or bent.
• Inspect the pneumatic hardware. Adjust as needed.

34,560 Loads or 6 months.

• Lubricate ring bearing
• Inspect carriage lift chain. Tension and lubricate per instructions in manual.
• Inspect commutator assembly. Blow out debris per instructions in the manual.
RTD Series

@ 5760 Loads or one month
• Inspect rubber stretch rollers. Clean as needed per instructions in manual.
• Inspect belt condition. Adjust as needed.

@ 17, 280 Loads or three months.
• Inspect tower drive chain. Apply a light coating of lubricant per instructions in manual.
• Inspect prestretch chain and belt. Tension as needed. Apply a light coating of lubricant per instructions in manual.

@ 34, 560 Loads or 6 months.
• Lubricate ring bearing per instructions in manual.
• Inspect carriage lift chain. Tension and lubricate per instructions in manual.
• Inspect commutator assembly. Blow out debris per instructions in the manual.

RTA Series

5760 Loads or one month
• Inspect rubber stretch rollers. Clean as needed per instructions in manual.
• Inspect belt condition. Adjust as needed.

17, 280 Loads or three months.
• Inspect tower drive chain. Apply a light coating of lubricant per instructions in manual.
• Check the cutter wire for excessive buildup. Replace if kinked or bent.
• Inspect prestretch chain and belt. Tension as needed. Apply a light coating of lubricant per Instructions in this manual.

34, 560 Loads or 6 months.
• Lubricate ring bearing per instructions in manual.
• Inspect carriage lift chain. Tension and lubricate per instructions in manual.
• Inspect commutator assembly. Blow out debris per instructions in this manual.
Electrical Prints and Mechanical Drawings

Electrical Prints .......................................................... 6-1
Mechanical Drawings .................................................... 6-2
6. Electrical Prints and Mechanical Drawings

Electrical Prints
Mechanical Drawings
<table>
<thead>
<tr>
<th>PART No.</th>
<th>WEIGHT</th>
<th>PRESTRETCH %</th>
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<tbody>
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<td>395</td>
</tr>
<tr>
<td>40B32</td>
<td>3.1</td>
<td>380</td>
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<tr>
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<td>355</td>
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<tr>
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<tr>
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<tr>
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<td>245</td>
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<tr>
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<td>230</td>
</tr>
<tr>
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<tr>
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<tr>
<td>40B04</td>
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</tbody>
</table>

PRESTRETCH CHANGE AVAILIBILITY

DESCRIPTION

DRIVE SPROCKET 40B... -3/4 BORE