

Predator SS

SIMPLIFIED STRETCH

SERIAL NUMBER

Please refer to the serial number in all correspondence with Highlight or any Highlight Distributor. This identifies your machine and will help in our ability to quickly and efficiently respond to your needs.

HIGHLIGHT
INDUSTRIES, INC.

OPERATION MANUAL NUMBER: PREDSS_COMBINED / AUG-2017

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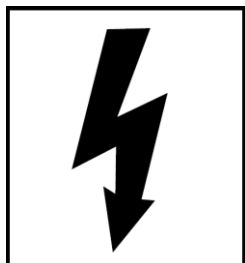
Predator SS Turntable Stretch Wrapper Operation Manual

General Information

Safety Messages

For the best result with the Predator Turntable Stretch Wrapper, carefully read this manual and all of the warning labels attached to the equipment before installing and operating it, and follow instructions exactly. Keep this manual for machine reference.

Definitions and Symbols



High Voltage!

This symbol indicates high voltage. It calls your attention to items or operations that could be dangerous to you or other persons operating the equipment. Read the message and follow the instructions carefully.



Warning!

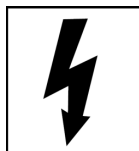
This symbol indicates a potentially hazardous situation which, if not avoided, can result to bodily injury, or serious damage to the product.



Notes

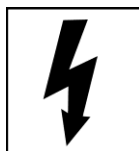
This symbol indicates an area or subject of special merit, emphasizing the equipment's capabilities, common errors in operation or maintenance, or other special instructions that can provide benefits to users.

General Precautions – Read These First!



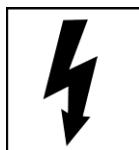
High Voltage!

Disconnect AC input power before checking components, performing maintenance, cleaning up, and when the machine is not in use. Do NOT connect or disconnect wires and connectors while power is applied to circuit.



High Voltage!

Wiring work should be carried out only by qualified personnel. Otherwise, there is a danger of electric shock or fire.



High Voltage!

The user is responsible for conforming to all applicable code requirements with respect to grounding all requirements. Do NOT use extension cords to operate the equipment.



High Voltage!

Motor control equipment and electronic controllers are connected to hazardous line voltages. When servicing drives and controllers, there may be exposed components with housings or protrusions at or above line potential. Extreme care should be taken to protect against shock.



Warning!

Loose clothing must NOT be worn while the machine is in operation. Stay clear of moving parts while the machine is running.

Introduction and Warranty

Introduction

Thank you for your purchase of a *Predator* SS Turntable Stretch Wrapper! Designed for the high volume industrial user the Predator SS will stretch wrap any load to the maximum stretch level of any film with full independent control of the film force. This allows even light unstable loads to be wrapped at the lowest possible cost and the maximum load holding force.

Limited Warranty

Highlight Industries, Inc. warrants its Predator manufactured by it, and sold pursuant to this order, will be of merchantable quality, free from defects in material and workmanship as determined at the date of shipment, by generally recognized, applicable and accepted practices and procedures in the industry, for a period of three (3) years from the Highlight invoice date, under normal use and service.

When the Purchaser gives Highlight written notice of any alleged defect within the applicable warranty period, Highlight will, at its option repair or replace the same free of charge F.O.B. its manufacturing plant, installation not included. Equipment replaced under the warranty shall have the same warranty as new equipment but does not extend the warranty of the original equipment.

Satisfaction of this warranty, consistent with other provisions herein, will be limited to the replacement or repair or modification of, or issuance of a credit for, the equipment involved, at Highlight's option.

Highlight neither assumes nor authorizes any person to assume for it any other obligation in connection with the sale of Highlight's equipment.

This warranty shall not apply to any equipment which has been repaired or altered by unauthorized personnel in any way so as to, in the judgment of Highlight, affect serviceability, or which has been subjected to misuse, negligence, accident, or to equipment made by Highlight which has been operated in a manner contrary to Highlight's instructions.

In no event regardless of the cause, shall Highlight be liable for penalties or penalty clauses of any description or any damages resulting from loss of profits, use of products or for any incidental indirect or consequential damages, even if advised of the possibility of such damages. This limitation of Highlight's liability will apply regardless of the form of action, whether in contract or tort, including negligence. Any action against Highlight must be brought within twelve (12) months after cause of action accrues.

"This warranty in lieu of all other warranties whether expressed, implied or statutory including implied warranties of merchantability of fitness or extends only to the buyer or customer purchasing from Highlight Industries, Inc or an authorized distributor."

About This Document

The purpose of this manual is to provide you with information necessary to install, operate, troubleshoot, and maintain the Predator SS Turntable Stretch Wrapper. The audience for this manual should have basic knowledge of mechanical and electronic components, standard electrical wiring practices, and schematics symbols.

To guarantee safe operation of the equipment, carefully observe the safety messages throughout this manual. Keep this operating manual and distribute it to all users for reference.

Application Assistance

If any assistance is desired, contact the distributor from whom you have purchased the unit, or call the number listed on the bottom of each page of this manual. To receive quick and proper technical support for the equipment you have purchased, please be prepared to provide the following information:

1. Machine Serial Number
2. Date of Purchase
3. Symptoms of any problems

Revision History

| Revision | Revision Comment | Date of Revision |
|----------|------------------|------------------|
| | Initial Release | August 3, 2017 |

Highlight Industries, Inc.

Predator SS Turntable Stretch Wrapper Operation Manual

Specifications

Specifications

Machine Dimensions

| | Low Profile | High Profile |
|------------------------------------|----------------|----------------|
| Length (inch) | 98 | 98 |
| Width (inch) | 60 | 48 |
| Height (inch) | 91 | 91 |
| Turntable Diameter (inch) | 60 | 48 x 48 |
| Turntable Height from Floor (inch) | 4.25 | 13.5 |
| Operation Space (inch) | 105 x 75 x 120 | 105 x 60 x 120 |
| Maximum Pallet Size (inch) | 52 x 52 x 72 | 52 x 52 x 72 |
| Shipping Weight (lbs) | 1050 | 1050 |

Electrical Specifications

- 120VAC, 60Hz, Single Phase, 15Amp

Turntable

- 4,000 lbs Maximum Turntable Load Capacity
- 12 RPM Maximum Turntable Speed
- 20-30 Loads Per Hour

Film Carriage

- Adjustable Raise and Lower Speeds
- Automatic Package Height Detection

Film Delivery

- Infinite/Manual Film Force Adjustment
- 10 Inch Diameter Roll Capacity
- 20 Inch Height Roll Capacity (30 Inch Optional)

System Overview Prints

**Note**

Shown below are STANDARD assembly drawings. It may not reflect your purchased system, especially when optional items are added. Refer to the Technical References section of the manual for more detailed information.

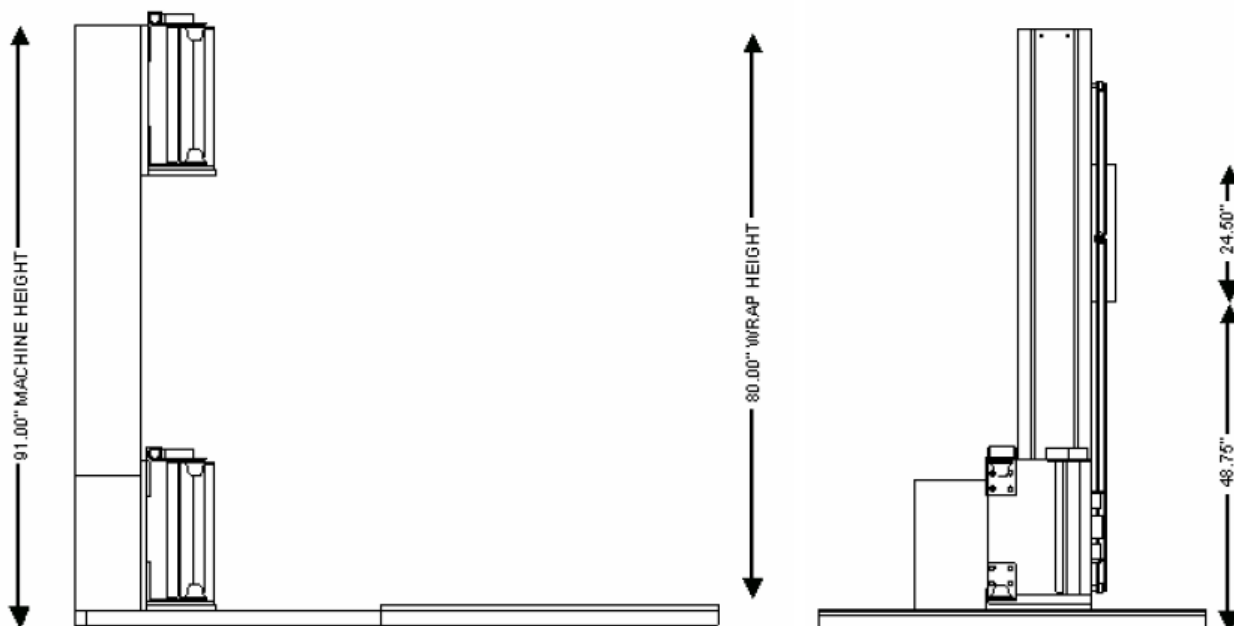
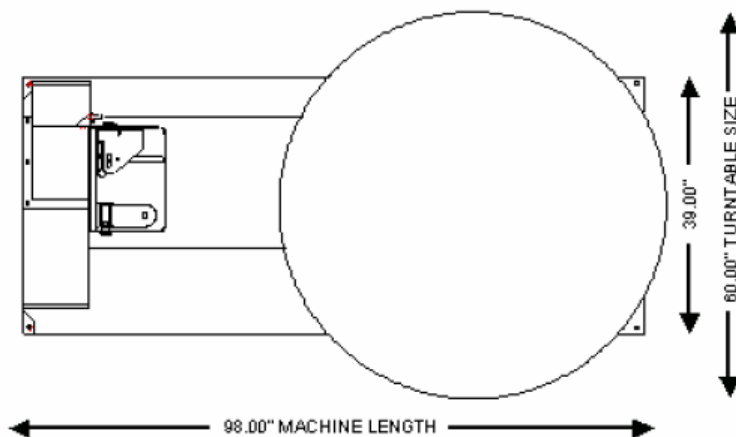


Figure 1A: Predator SS Low Profile Overview Layout

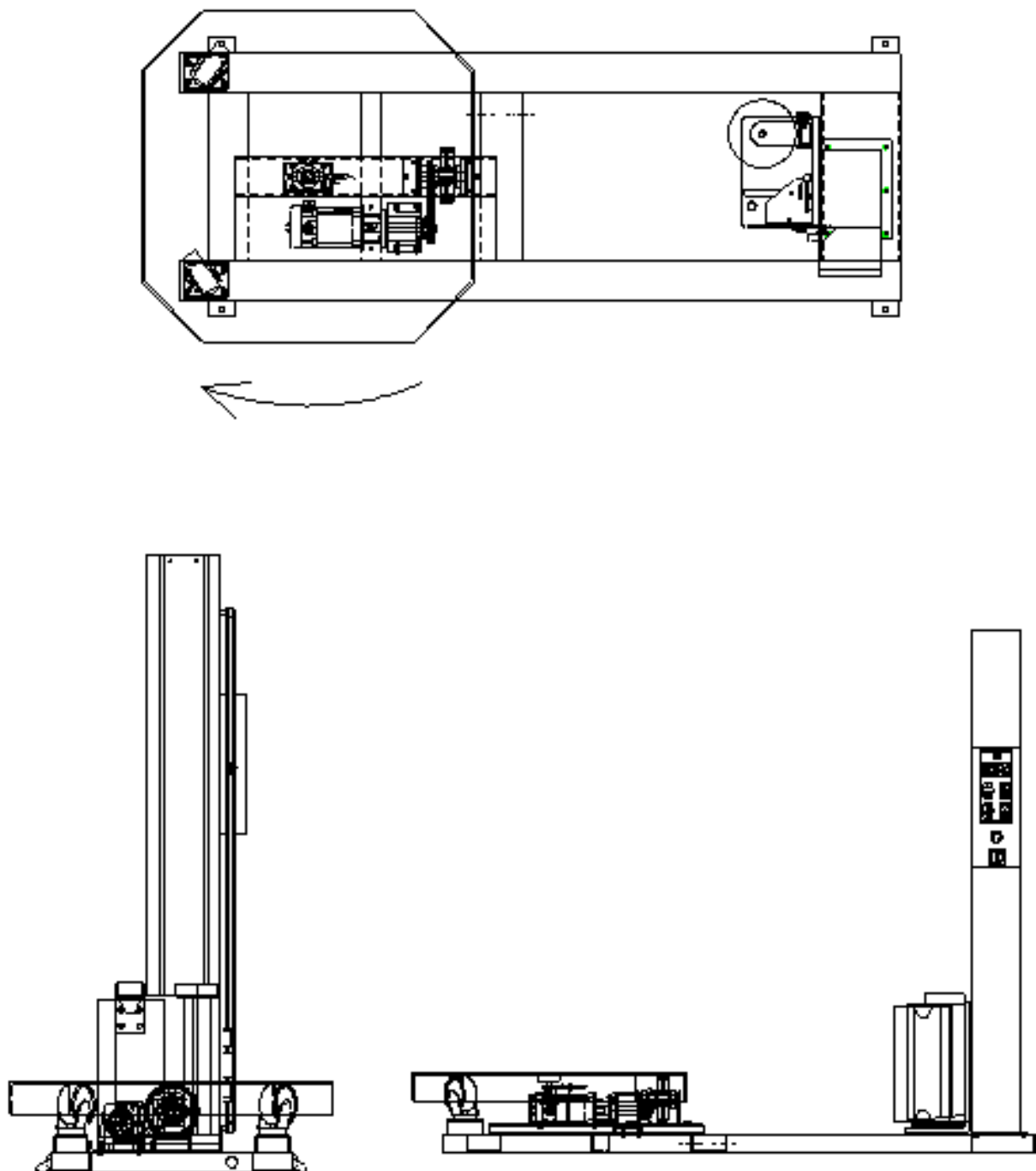


Figure 2B: Predator SS High Profile Overview Layout

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Predator SS Turntable Stretch Wrapper Operation Manual

Installation & Adjustments

Machine Placement

Receiving and Inspections

The Predator Turntable Stretch Wrapper has gone through quality control tests at the factory before shipment. Upon receiving, please do the following:

1. Inspect the entire machine for visual damage during shipment. If found, immediately report this damage to the trucking line. *Highlight Industries, Inc.* has taken every precaution during the packaging and loading of this equipment, however, it is YOUR RESPONSIBILITY to inspect for damage before installation.
2. Make sure the part or serial number indicated on the machine corresponds with the part number of your order.

Positioning of the Machine

Place the Predator Turntable Stretch Wrapper close to an area where you will be wrapping your loads. Make sure that there is sufficient room to load/unload the machine and that you do not stretch the power cable. Remember, you will need to plug the machine in to a 120VAC, 15-Amp outlet.

Floor Weight Bearing/Stress Tolerance

The floor must be able to bear the weight of the machine, the weight of the maximum load, plus a safety factor. The floor must also be able to tolerate the stress of the machine's operation. If the fork trucks will operate on the same weight bearing area, add the weight of the trucks to the weight bearing stress tolerance requirements.

The Predator can be installed on any type of floor constructions that meets the weight bearing and stress tolerance requirements.



Warning!

The Predator must be anchored securely to the floor, using the type of anchor recommended for your floor.

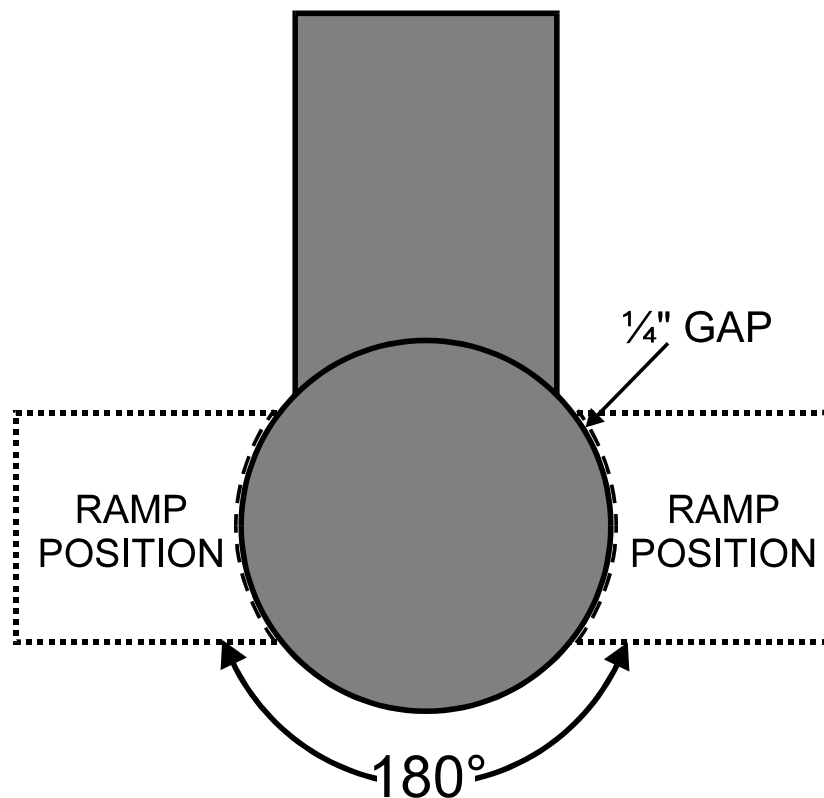
Machine Set-Up

Unpacking and Moving the Machine

It is very important to read all instructions before undertaking any of these steps. The following steps should help achieving a safe and quick machine set-up.

1. Place the skidded machine close to the designated wrap area. Remove all shipping fasteners holding the machine to the pallet. The machine may be crated with the tower tilted down with the motor cover front carriage roller removed for shipping purposes.
2. Place the forks of the forklift through the tubes provided on the base of the machine, remove the machine from the shipping skids, and place it in the designated wrap area.
3. If the OPTIONAL ramp (Part Number #XXXXXX) is purchased for a **low profile** machine:

Select a ramp position as illustrated below. The ramp can be positioned anywhere in a 180° rotation around the front of the turntable. There should be ¼" gap between the turntable and the ramp. The ramp should be fully supported by the floor and anchored to the floor.



4. When a machine is ordered with a 110" extended tower or a scale package, the carriage photo eye bracket will need to be unbolted from its shipping position (Figure 2) to its operating position (Figure 3).



Figure 3: Bracket in its Shipping Position



Figure 4: Bracket in its Operation Position



Warning!

It is very important that the machine be leveled. Uneven floors will cause premature turntable support roller failure.

Power and Control Wiring Checks

1. Using a volt meter, check the AC voltage coming to the machine and insure the proper voltage is present.
2. Make sure the Emergency Stop button on the operator panel is fully pressed in. Turn the disconnect switch to the ON position. Power should be applied to the drive board, operating touch-panel, photoelectric sensors, switches, and LED's.
3. Press the Emergency Stop button. Make sure all machine power is completely removed when the Emergency Stop button is depressed. Pull the Emergency Stop button out to resume.
4. Open the electric control box. Make sure all machine power is completely removed when the electrical control box is open. Close the electrical control box to resume.
5. Trip the carriage foot security bar. Make sure all machine power is completely removed when the carriage foot security bar is tripped. Clear the bar to resume.



Warning!

Ensure that the Emergency Stop button light is ON when the button is pushed in and OFF when the button is pulled out.

Microprocessor Card

Microprocessor Card Description

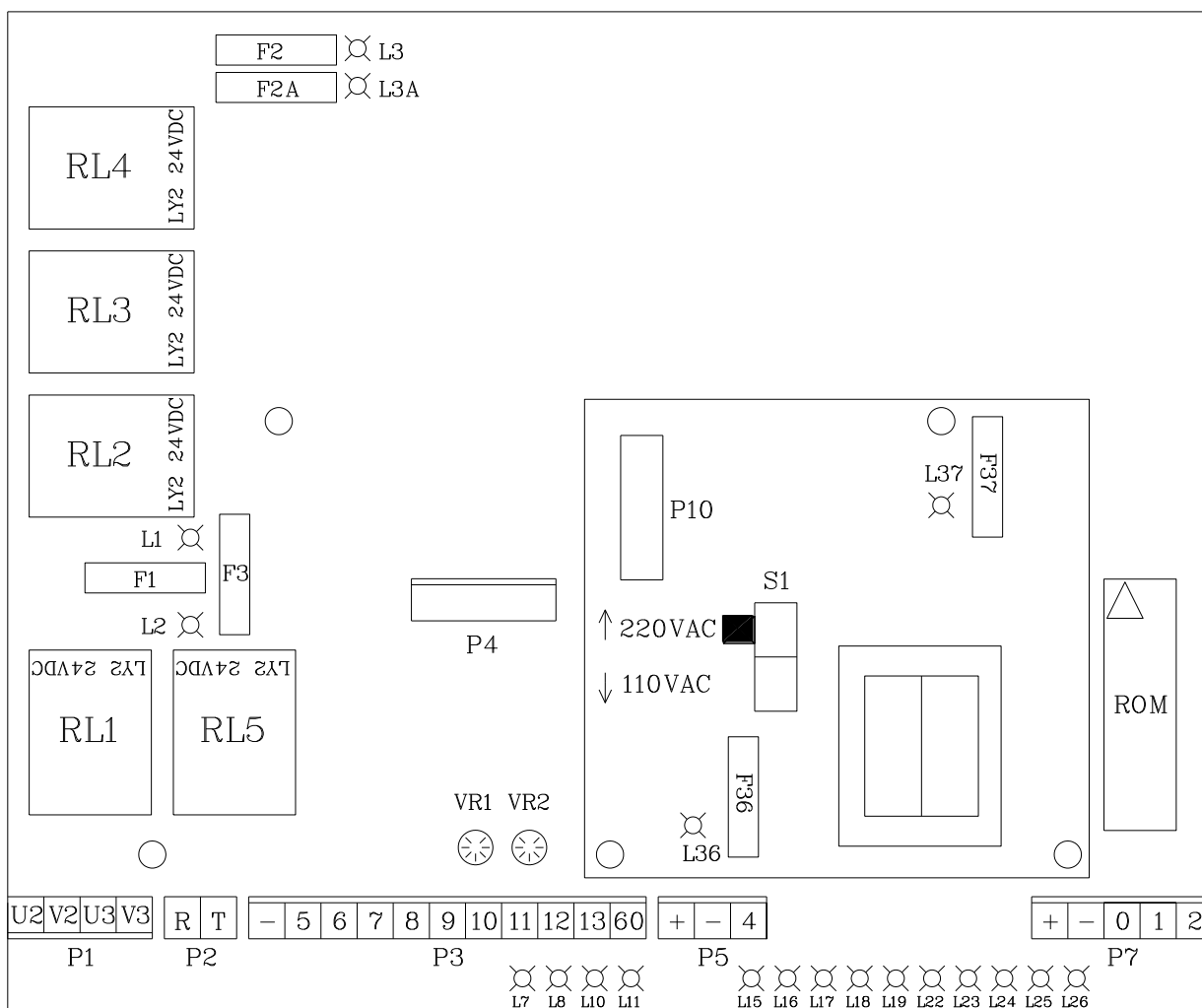


Figure 5: Microprocessor Card for the Predator SS

S1: Operating voltage selector (220 VAC or 110 VAC)

Connector P1: Turntable/Film Carriage Relay Output

Connector P2: Power Input

Connector P3: Operator Panel Input

Connector P4/P10: Transformer Input/Output

Connector P5: Turntable Proximity Sensor Input

Connector P7: Film Carriage Limit Switches Input

Relay 1: Film Carriage Down

Relay 2: Film Carriage Up

Relay 3: Turntable/Film Carriage Stop

| | |
|-----------------|--|
| Relay 4: | Power Input |
| Relay 5: | Turntable Running |
| Fuse 1: | Carriage Motor (5 Amp) |
| Fuse 2/2A: | Power Input (10 Amp) |
| Fuse 3: | Turntable Motor (8 Amp) |
| Fuse 6: | Transformer Input (1 Amp) |
| Fuse 7: | Transformer Output (1 Amp) |
| LED 1 is ON: | Film Carriage Motor fuse is blown |
| LED 2 is ON: | Turntable Motor fuse is blown |
| LED 3/3A is ON: | Power Input fuse is blown |
| LED 7 is ON: | Cycle starts |
| LED 8 is ON: | Film Carriage is moving up |
| LED 10 is ON: | Film Carriage is moving down |
| LED 11 is ON: | Turntable is rotating |
| LED 15 is ON: | Start Button is pushed |
| LED 16 is ON: | Pause Button is pushed |
| LED 19 is ON: | Package Height Photo Sensor is unblocked |
| LED 23 is ON: | Carriage Max Up Limit Switch is not tripped |
| LED 24 is ON: | Carriage Max Down Limit Switch is tripped |
| LED 25 is ON: | Emergency Stop Button is not pushed |
| LED 26 is ON: | Turntable Home/Count proximity switch is blocked |
| LED 36 is ON: | Transformer Input/Output is blown |
| VR1: | Film Carriage Max Speed setting |
| VR2: | Turntable Max Speed setting |

Replacing Microprocessor Card

1. Turn the disconnect switch to **OFF** position.
2. Removed the old microprocessor card by pulling all connectors off and loosening the four mounting screws.
3. Install the new microprocessor card; connect all connectors and tighten the mounting screws.
4. Turn the disconnect switch to **ON** position. The display should show “- -“. If not, check all connectors and fuses again.

Optional Scale Package

The optional scale package allows the user to quickly measure the weight of the package placed on the machine. To operate correctly and efficiently the scale needs to be configured with the correct settings. Below are the instructions on how to re-configure the scale and the settings that have been pre-programmed. Re-configuring the scale is not required unless there is a problem with the existing scale or a new scale is added to the machine. Refer to the scale manual for more information.

**Note**

Changing the scale parameters to values other than the Highlight recommended values may result in poor scale operation.

Navigating the Scale Menu

Step 1: Turn the scale display over so you are looking from above down at the back side of the scale and turn off the scale power.

Step 2: Remove the two small screws holding a small plate on the back of the scale.

Step 3: Looking down at the scale, move the switch under the plate to the right.

Step 4: Turn the scale power back on.

Step 5: Press the “PRINT / >>” button until the desired setting appears on the screen.

Step 6: Press the “ZERO” button to enter the parameter set-up.

Step 7: Press the “PRINT / >>” button until the display reads the correct setting and press the “SET / NET” button.

Step 8: Turn the power back off, move the switch under the plate to the left, and turn the power back on.

Step 9: Replace the screws on the back cover and retighten the scale swivel grips on the side.

Step 10: The scale is now ready to use.

Highlight Recommended Configuration Values:



Note

Changing the scale parameters to values other than the Highlight recommended values may result in poor scale operation.

| Name/Code | Description | Highlight Recommended Value |
|-----------------------|--|-----------------------------|
| F1: Graduations | Specifies the number of full-scale graduations. Value should be consistent with legal requirements and environmental limits on the useful system resolution. | 5000 |
| F2: Span Gain | Span Gain is related to A/D integration time. The larger the span gain, the higher the internal resolution, but the slower the update speed. Note that the scale must be re-calibrated whenever this parameter is altered. See Appendix C in the scales manual for more information. | 100 |
| F3: Zero Track Band | Selects the range within which the scale will automatically zero. Note that the scale must be in a standstill to zero the scale. | 3 |
| F4: Zero Range | Selects the range within which the scale may be zeroed. Note that the indicator must be in standstill to zero the scale. | 100 |
| F5: Motion Band | Sets the level at which motion is detected by comparing the present display update with the previous one. If motion is not detected for two seconds or more, scale is in standstill and can process a Print or Zero command. Maximum value varies depending on local regulations | 1 |
| F6: Digital Filter | Averages weight readings to produce higher stability but the slower the indicator's response time. Choose 8 unless a very fast response is needed. | 8 |
| F7: Overload Limit | Selects the desired formula which determines the point at which the indicator shows overload. All selections are based on the primary unit selected in F8. | 2% |
| F8: Calibration Unit | Selects the primary base unit to be used in the calibration process. Also the default unit for normal operation. 1 = pounds, 2 = kilograms. | 1 |
| F9: Display Divisions | Determines the desired weight increments. Value should be consistent with legal requirements. | 1 |
| F10: Decimal Point | Determines the location of the decimal point. | 0 |
| F16: Zero Calibration | Places the scale in a Zero Calibration routine. | See below. |
| F17: Span Calibration | Places the scale in a Span Calibration routine. See below. | See below. |

Scale Calibration Procedure



Note

Highlight Industries, Inc calibrates the scale before shipment using known weights. The values stored in these settings are custom per scale and machine. Do not change these values unless directed to do so by Highlight personnel.

Step 1: Navigate the scale menu to parameter “F 16.”

Step 2: Press the “ZERO” button ONCE. This enters the Zero Calibration Menu. The display will momentarily show “C 0” followed by a value.

Step 3: After making sure that there are no test weights on the machine press the “ZERO” button again. The display will zero.

Step 4: Press the “SET / NET” button to save the zero point value. The display will show “EndC0” momentarily then revert to parameter F16.

Step 5: Navigate to parameter “F 17.”

Step 6: Press the “ZERO” button ONCE. This enters the Span Calibration Menu. The display will momentarily show “C 1” followed by a value with one flashing digit. This value will be zero with the decimal point parameter selected in F10.

Step 7: Place a known weight on the machine. Ensure that the test weight is below the maximum capacity of the scale and above 1% of the maximum capacity of the scale.

Step 8: Key in the weight of the test weight using the buttons on the screen. Press the “TARE / <<” button to select the digit to the left of the current position. Press “PRINT / >>” to select the digit to the right of the current position. Press “UNITS” to increase the value of the digit and press “ZERO” to decrease the value of a digit.

Highlight Industries, Inc.

Predator SS Turntable Stretch Wrapper Operation Manual

Operation Instructions

Operator Controls

The operator panel for the Predator SS is shown and described as follows:

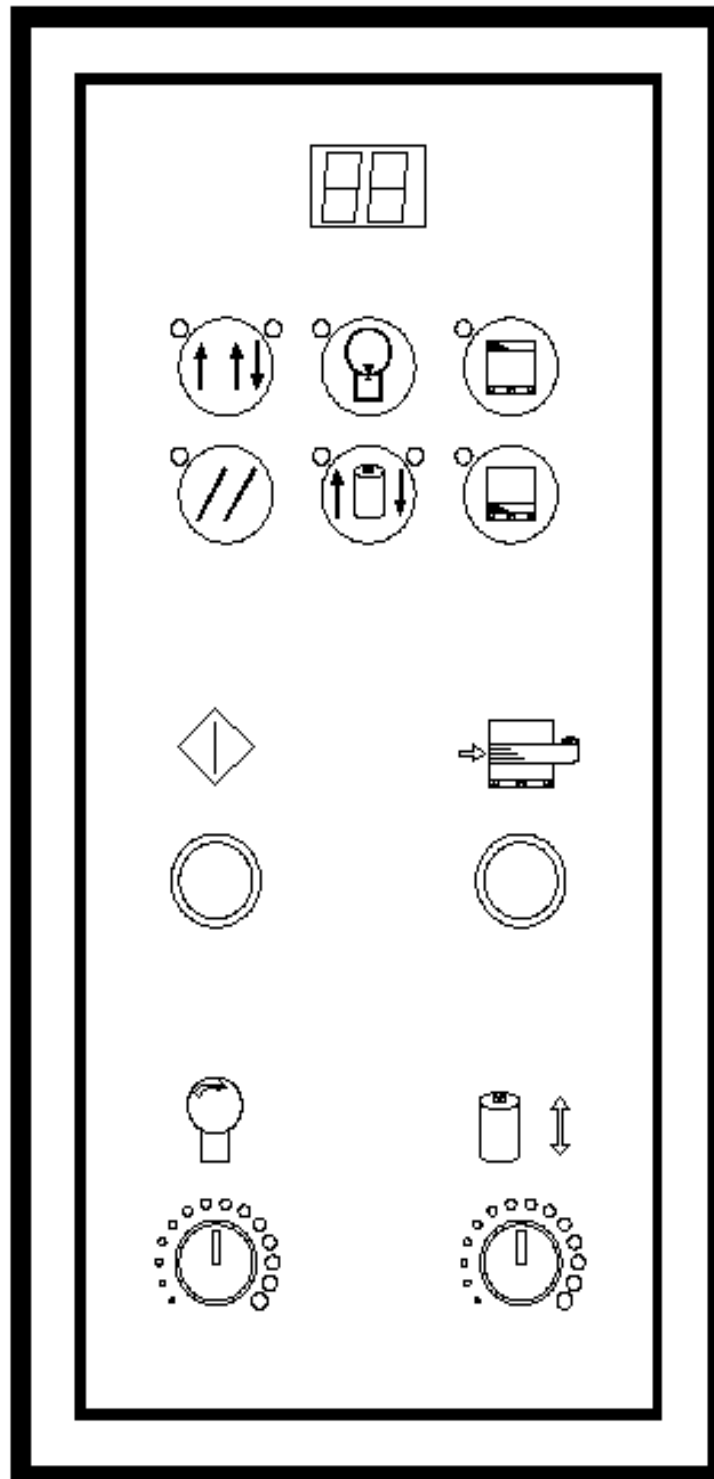
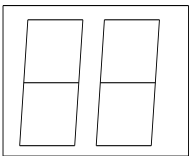
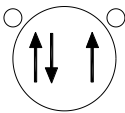
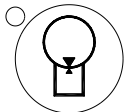
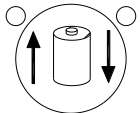
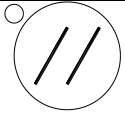

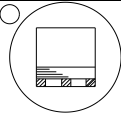
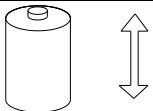
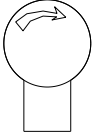
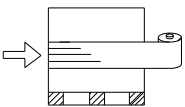
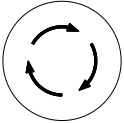
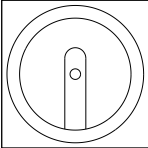


Figure 6: Operator Controls Diagram for the Predator SS

| | FUNCTION |
|---|--|
|  | <p>This displays the system information:</p> <p>EO = Emergency Stop condition - - = System is normal - - Blinking = PWS is bad or both carriage up and down are on A = Mode A is selected B = Mode B is selected CO = Continue operation by pushing START button S = System is in Manual</p> |
|  | <p>This displays the selected wrapping mode:</p> <p><i>Mode A</i> = The LED light on the button's upper left is on. In Mode A, the bottom wrap is applied first, and then the top wrap follows. The film carriage comes down to its home position after wrapping cycle is finished.</p> <p><i>Mode B</i> = The LED light on the button's upper right is on. In Mode B, after a bottom to top wrapping is completed, the carriage stays on the top. The START button flashes at this point. To resume the operation, push START. When the carriage reaches the bottom, the START button goes off. Push START button again to begin a new cycle.</p> |
|  | <p>The TURNTABLE JOG button allows you to manually operate the turntable. When this button is pushed, the light on the button's upper left is on. Push START button to run the table. Pushing the button again will stop the turntable, and the light will turn off. This button may be used in conjunction with the CARRIAGE JOG button.</p> |
|  | <p>The CARRIAGE JOG button allows you to manually operate the carriage. When this button is pushed, one of the lights on the button's upper right or left is on. The upper left light indicates that the carriage will go up when the START button is pushed. Conversely, the upper right light indicates the carriage will go down when the START button is pushed. To pause the operation, simply push this button again. Both indicator lights will go off. This button may be used in conjunction with the TURNTABLE JOG button.</p> |
|  | <p>Push this RESET button, followed by a START button, to reset the system. The turntable will return to its home position, and the carriage will lower all the down.</p> |
|  | <p>Push this TOP WRAPS button to select the number of top wraps desired (0 to 9).</p> |

| | |
|--|---|
|  | Push this BOTTOM WRAPS button to select the number of bottom wraps desired (0 to 9). |
|  | Turn the CARRIAGE SPEED adjustment knob clockwise to increase, and counterclockwise to decrease the carriage speed. |
|  | Turn the TURNTABLE SPEED adjustment knob clockwise to increase, and counterclockwise to decrease the turntable speed. |
|  | The BANDING button is used for applying multi-layer reinforcing wraps in automatic or manual mode. Push and hold this button: the carriage will stop raising/lowering. When released, the carriage will resume its movement. |
|  | The EMERGENCY STOP button stops the turntable in the event of emergency. This will <i>NOT</i> stop the turntable instantly. The turntable will coast to a stop, depending on the load's weight, after this button is pushed. |
|  | This switches the main power ON or OFF. |

**WARNING!**

The FOOT SAFETY BAR, located underneath the film carriage, works only when the machine is ON. When the bar is activated, the main power will shut OFF. Releasing the bar will re-activate the main power. Push START button to resume the operation.

Film Loading

Follow the procedure below to thread the film onto the Film Carriage.

**Warning!**

Be sure the Emergency Stop button is pressed before threading the film and while the film is being threaded.

1. Place the film on the film mandrel.
2. Set the Stretch Handel to the **OFF** position to release the tension. (See figure below)

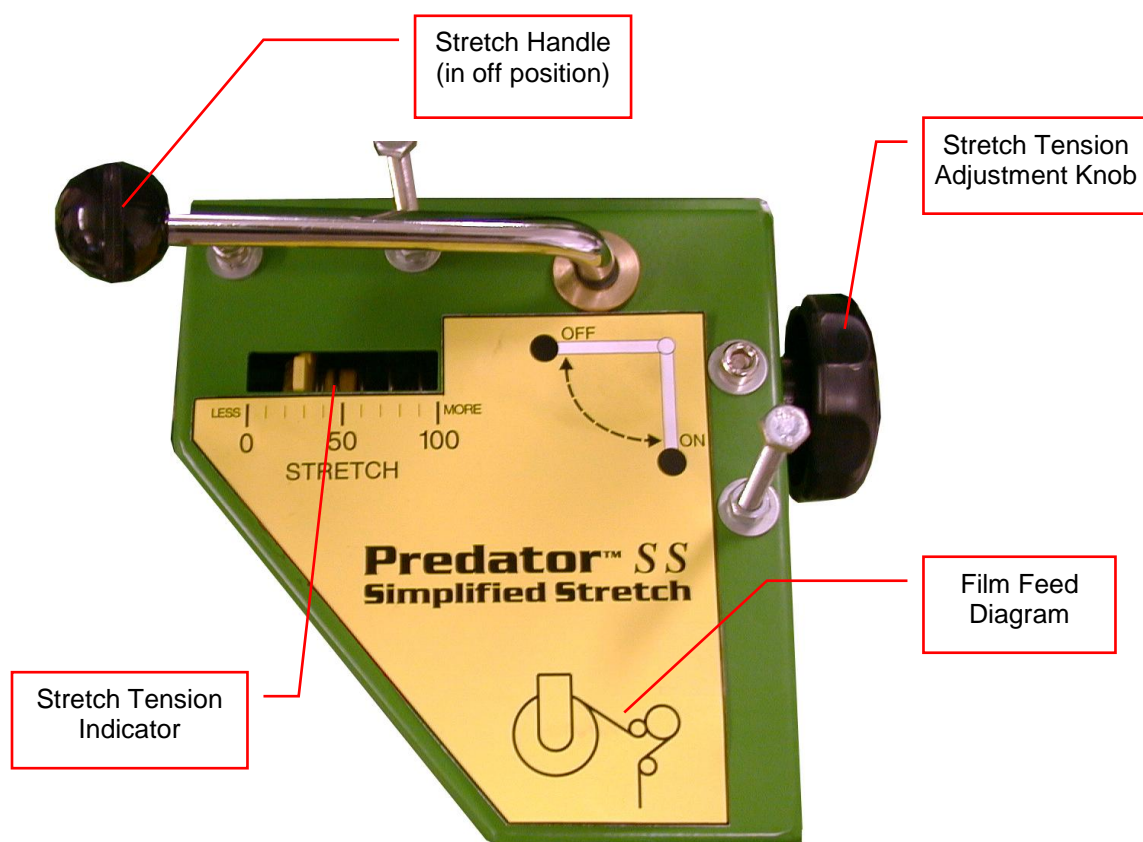


Figure 7: Film Loading/Threading Diagram

3. Follow the *Film Feed Diagram* and thread the 6-foot film tail ALL THE WAY though the rollers.
4. After threading, rotate the Stretch Tension Knob clockwise to increase film tension; or counterclockwise to decrease film tension.

5. Attach the film securely to the pallet. Tying the end of the film in a knot often helps secure the film to the pallet.

**Note**

The Stretch Tension numbers (0 to 100) DO NOT indicate the stretch percentage of your film. The numbers are used for reference only.

Machine Operating Instructions

Normal System Start-Up

After the machine has been positioned and supplied with proper voltage, you are ready to begin operating. Read thoroughly and follow these steps to operate your system:

1. Place product on the turntable
2. Make sure the film carriage is situated at the max down position.
3. Thread the film as instructed, and attach it to the product.
4. Set the desired number for top and bottom wrap counts.
5. Select wrapping mode “A” or “B”.
6. Press the “Start button to initiate cycle.

Stop Condition

Follow the procedure below in the event of an emergency.

1. Press the “STOP” button. This cancels the current wrapping cycle and immediately stops the system.
2. Correct the problem.
3. Pull the “STOP” button out, and then perform normal system start-up procedure.



Note

After pressing the “E-STOP” button, wait for at least 60 (sixty) seconds before pulling the button back out. This will allow the microcontroller card to completely turn off.

Applying Reinforcement Wraps

Automatic operation can be paused in order to apply reinforcement wraps to an additional top sheet or corner boards on the product. Follow the procedure below.

1. Press the “START” button as normal to initiate cycle.
2. As the carriage travels up, press the “Banding” button. The carriage will stop and reinforcing wraps will be applied.
3. Letting go of the “Banding” button will resume the cycle.

Highlight Industries, Inc.

Predator SS Turntable Stretch Wrapper Operation Manual

Maintenance

Preventative Maintenance

As with all machinery, proper attention and maintenance is the key to long component life, maximum performance, and safe operation. By spending a few minutes reading and following these preventive measures, you should reduce the downtime and prolong the life of your system.

It is important to understand that these maintenance schedules are minimum recommendations. *Highlight Industries, Inc.* cannot possibly know, evaluate, or advise the various trades in all schedules of periodic maintenance. Accordingly, anyone who maintains or services a stretch wrap machine must first satisfy himself/herself as to the schedules of preventive maintenance based on cycling operation and environmental locations.

**Warning!**

All maintenance operations require the equipment to be powered down and locked out for personnel safety.

Lock-out/ Tag-out Procedures

Be sure that anyone performing any type of maintenance on this equipment is familiar with and is adhering to the lock-out/tag-out procedures set forth by the General OSHA or the State OSHA guidelines.

Visual Checks

Visual checks should be conducted at least once per month:

1. Keep the machine and surrounding area as clean as possible, especially near moving components.
2. Check for loose hardware, especially set screws located in: sprocket hubs, bearing hubs, and flanges.
3. Check for oil leaks around the speed reducers.
4. Check for dry seals at the bearings.
5. Check for chain wear and proper tension on the power roller stretch sprockets. The correct amount of chain tension can be checked by pulling the chain taut and having 3/8" slack.
6. Check for loose electrical connections and for frayed cords and cables. Replace immediately any damaged cords and cables.

Turntable Belt Adjustment (Low Profile Only)

Refer to the figure below to adjust the turntable belt. First, loosen the four motor flange (M10) screws. Turn the (M10) bolt on the adjuster tab until the belt is tensioned. Retighten the four motor flange screws.

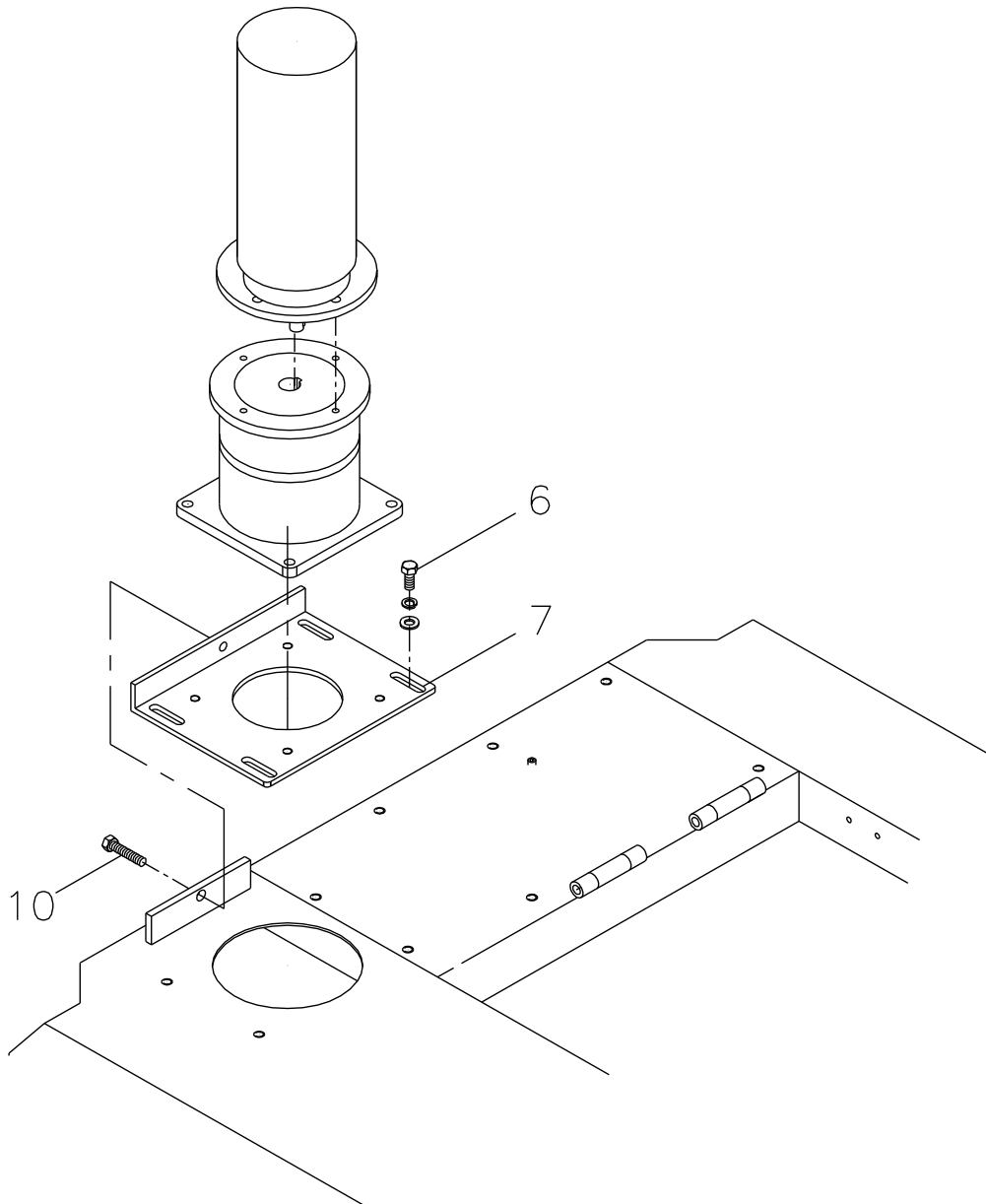


Figure 7A: Turntable Belt Adjustment

Film Carriage Lift Chain Adjustment

Refer to the figure below to adjust the film carriage lift chain. First, loosen nut (M12) on the adjustment bracket. Turn the bottom bolt until desired tension is achieved. Retighten nut (M12). Note that the driving chain and adjustment bracket should be parallel with the movable pulley base.

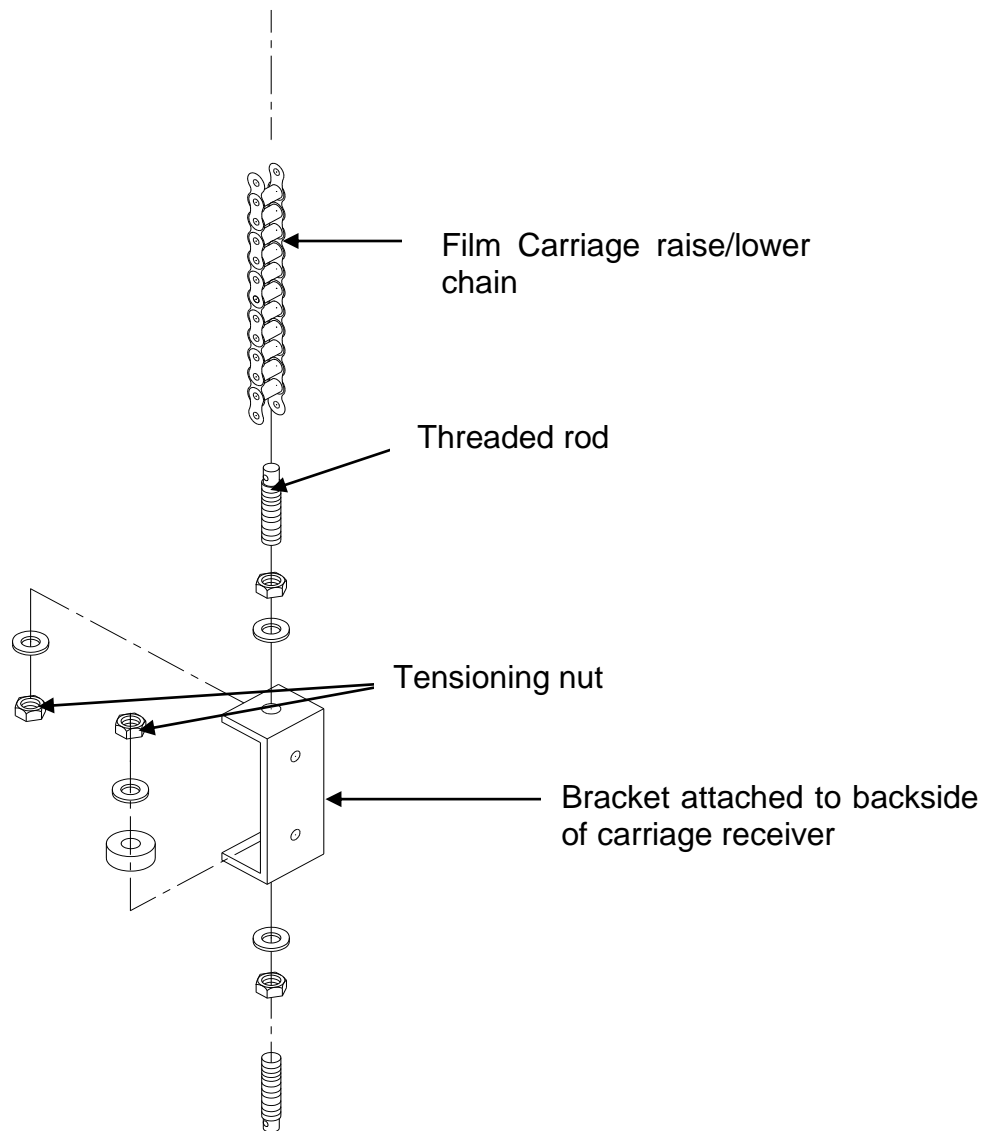


Figure 8B: Film Carriage Lift Chain Adjustment

Sprockets and Chains

All sprockets should be inspected for wear, and chains should be checked for proper tension and lubrication on a periodic basis. Failure to do so will lead to premature sprocket failure. Any general-purpose chain lube should be sufficient for lubrication. Replace chain guards when preventative maintenance is complete.

Maintenance Schedule

| Part | Schedule | Service With |
|--------------------|---|-------------------|
| Carriage Lift Belt | Check and tighten every six months. | |
| All pivot bearings | Initially first 1,000 cycles; every 10,000 cycles thereafter. | Mobil EP-1 grease |

**Note**

For additional maintenance information about specific components on the machine, refer to the components operation manuals shipped inside the main enclosure.

Highlight Industries, Inc.

Predator SS Turntable Stretch Wrapper Operation Manual

Trouble- shooting

Self Test Troubleshooting

**Warning!**

Make sure that only qualified personnel will perform inspection, troubleshooting, and part replacement.

An operator may check the status of the machine by running one of the self-tests. If the procedures are carried out properly, the INFO screen will display the location of the problem.

To run Self-test A, follow the procedure below:

1. Turn the turntable and carriage speed adjustment knobs to maximum (clockwise) position.
2. Put a load on the turntable (about 3-feet tall).
3. While holding down the **TURNTABLE JOG** and **CARRIAGE JOG** buttons, turn the main disconnect switch ON.
4. Release the buttons after the screen shows "EE"
5. Push the **START** button. The machine will run the test, which takes approximately two minutes.
6. The screen will display the alarm code. Refer to the table below for code information.

| Display | Possible Problem Location(s) |
|---------|---------------------------------------|
| E1 | Film carriage max upper limit switch |
| E2 | Film carriage max down limit switch |
| E3 | Turntable count/home proximity switch |
| E4 | Package height photo sensor |

To run self-test B, follow the procedure below:

1. Turn the turntable and carriage speed adjustment knobs to maximum (clockwise) position.
2. Put a load on the turntable (about 3-feet tall).
3. While holding down the **TOP WRAPS** and **BOTTOM WRAPS** buttons, turn the main disconnect switch ON.

4. Release the buttons after the screen shows “99”
5. The limit switches and sensors should be on during operation. The screen will display the alarm code that gives information about alarm code.

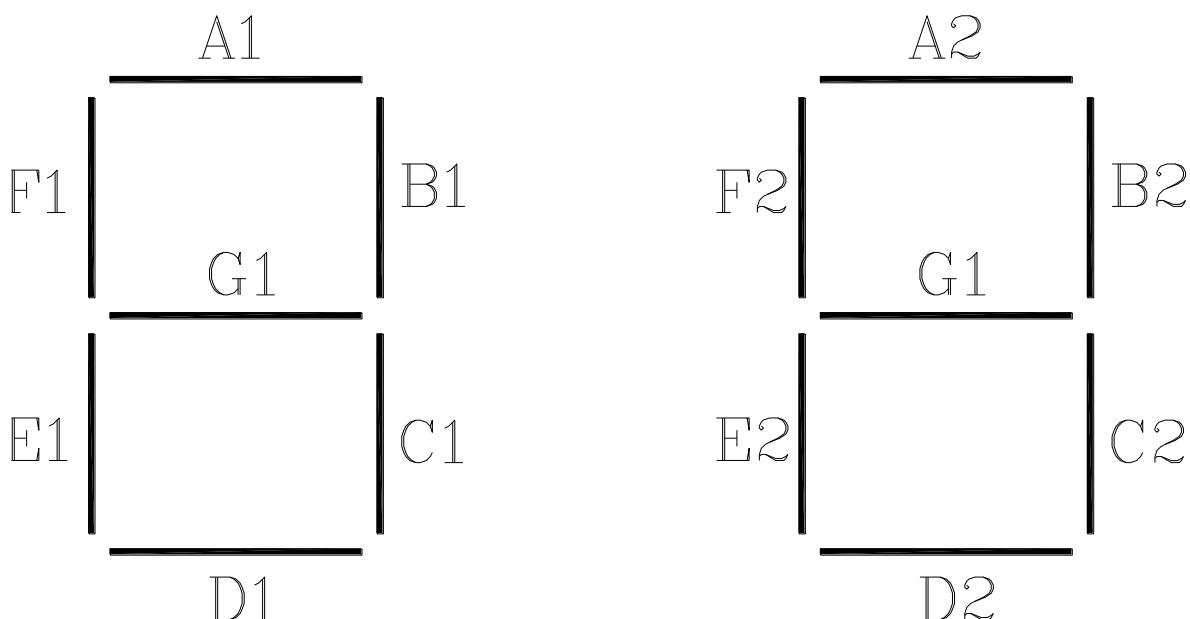
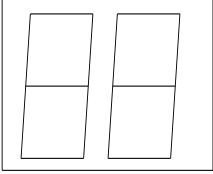


Figure 9: Self Test Error Display

| Display | Possible Problem Location(s) |
|---------|---------------------------------------|
| A1 | Film Carriage Safety Bar |
| | EMERGENCY STOP button |
| | Electrical enclosure safety switch |
| B1 | Film carriage max upper limit switch |
| C1 | Film carriage max down limit switch |
| D1 | Turntable count/home proximity switch |
| E1 | BANDING push button |
| F1 | START push button |
| G1 | Package height photo sensor |
| A2 | START light |
| B2 | Turntable motor |
| C2 | Carriage motor |

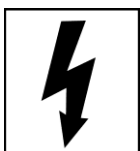
Additional INFO Messages

| | |
|---|--|
|  | <p>During normal machine operation, the following messages might be displayed:</p> <p>EO = Emergency Stop condition</p> <p>- - = System is normal</p> <p>- - = Blinking = Power supply is bad or both carriage up and down limit switch inputs are on</p> <p>A = Mode A is selected</p> <p>B = Mode B is selected</p> <p>CO = Continue operation by pushing START button</p> <p>S = System is in Manual</p> |
|---|--|

Troubleshooting Guide

**Warning!**

Make sure that only qualified personnel will perform inspection, troubleshooting, and part replacement.

**High Voltage!**

Disconnect all power including external control power that may be present before servicing the machine. Wait 3 (three) minutes for the microcontroller card to fully discharge. The machine INFO and/or LED's are not accurate indicators of the absence of voltage.

The diagrams in this section will guide you in identifying typical problems while operating the Predator Turntable Stretch Wrapper, and provide you with corresponding solution(s). Problems are divided in reference to the machine functions: power, turntable, and film carriage.

If further assistance is required, contact the distributor from whom you have purchased the equipment, or call the number listed on the bottom page of this manual. To receive quick and proper technical support, please be prepared to provide the following information:

1. Machine serial number
2. Date of purchase
3. Symptoms of any problem

Power Problems

| Problem | Possible Cause | Possible Solution |
|---|--|--|
| The machine does not power up. (INFO screen is blank) | The machine is not plugged in. | Plug the machine into a 120VAC, 20A outlet. |
| | The Main Disconnect is turned off. | Turn the Main Disconnect on. |
| | A fuse is blown. | Replace the fuse(s). |
| | The power supply has malfunctioned. | Ensure fuses F6 and F7 are not blown. Replace the power supply (transformer card). |
| | Power to the machine is not correct | Use a voltmeter to check that the machine is receiving 120VAC. |
| The INFO display shows E0 | The Emergency Stop button is pressed. | Turn the breaker back on, or replace if necessary. |
| | The film carriage foot safety switch is tripped. | Remove any obstructions and check that the switch is working properly. |
| | The electrical enclosure door switch is open. | Ensure the door is closed and that the safety switch is made. |
| The INFO display is flashing '- -' | The power supply has malfunctioned. | Ensure fuses F6 and F7 are not blown. Replace the power supply (transformer card). |
| | The carriage raised/lowered limit switches are both tripped. | Ensure there are no obstructions and that the switches are working properly. |

Turntable Problems

| Problem | Possible Cause | Possible Solution |
|---|---|---|
| The turntable does not rotate manually. | The Start Button was not pressed. | The Start button needs to be pressed at the same time as the turntable job button to activate manual mode. |
| | The Turntable speed potentiometer is not set high enough. | Adjust the turntable speed towards 100%. |
| | The turntable is mechanically restricted. | Check the condition of the motor, chain, and rollers under the turntable. Replace as necessary. |
| | The turntable speed potentiometer has failed. | Use a multi-meter to check the resistance of the potentiometer. |
| | A fuse on the microcontroller card has blown. | Check fuses and replace as needed. |
| | The motor is not wired correctly. | Check wiring to the motor and replace as necessary. |
| The turntable does not stop at home. | The Turntable Home proximity switch is malfunctioning. | Check the wiring to the proximity switch and that it is adjusted properly (only 8mm sensing range). Replace as necessary. |

Film Carriage Problems

| Problem | Possible Cause | Possible Solution |
|--|--|--|
| The Film Carriage does not Raise or Lower manually or in the wrap cycle. | The Start Button was not pressed. | The Start button needs to be pressed at the same time as the carriage raise/lower button to activate manual mode. |
| | The Carriage Banding button is tripped. | Ensure the banding button is not tripped and that the button is working properly. |
| | The Film Carriage Raised/Lowered limit switch is malfunctioning. | Ensure that the carriage limit switch is clear of any obstruction and moves smoothly. Check wiring to the limit switch and replace as necessary. |
| | The film carriage speed potentiometer is not set high enough. | Adjust the speed potentiometer towards 100%. |
| | The film carriage speed potentiometer has failed. | Use a multi-meter to check the resistance of the potentiometer. |
| | A fuse on the microcontroller card has blown. | Check fuses and replace as needed. |
| | The motor is not wired correctly. | Check wiring to the motor and replace as necessary. |
| The Film Carriage rises some, but does not rise to the top of the package. | The Product Height Detection photo eye is positioned too high. | Slide the Product Height Detection photo eye lower. |
| | The Product Height Detection photo eye does not see the load. | Black or clear loads may require an optional advanced sensor instead of the standard diffuse sensor. |
| | | Check wiring to the sensor. |
| | | Replace the sensor as necessary. |
| | The Product Height Detection photo eye is not adjusted properly. | Adjust position or sensitivity of the sensor. |
| The Film Carriage rises too far above the package. | The Product Height Detection photo eye is positioned too low. | Slide the Product Height Detection photo eye higher. |
| | The Product Height Detection photo eye is not adjusted properly and always sees a 'package'. | Adjust the sensitivity of the sensor (see the Photo Sensor Adjustments and/or Pre-Operation Adjustments section). |

Highlight Industries, Inc.

Predator SS Turntable Stretch Wrapper Operation Manual

Technical References

Recommended Spare Parts

Low Profile:

The table below provides the recommended spare parts list for the Predator SS **Low Profile** Turntable Stretch Wrapper.

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|---|-----|
| Turntable | 300013 | BELT B-172 | 1 |
| Turntable | 500010 | PLASTIC SUPPORT WHEEL | 6 |
| Turntable | 300037 | TURNTABLE DRIVE MOTOR – 1/4HP (60" DIA TURNTABLE) | 1 |
| Turntable | 300031 | TURNTABLE DRIVE REDUCER (60" DIA TURNTABLE) | 1 |
| Tower | 300038 | CARRIAGE LIFT MOTOR – 1/4HP | 1 |
| Tower | 300030 | CARRIAGE LIFT REDUCER | 1 |

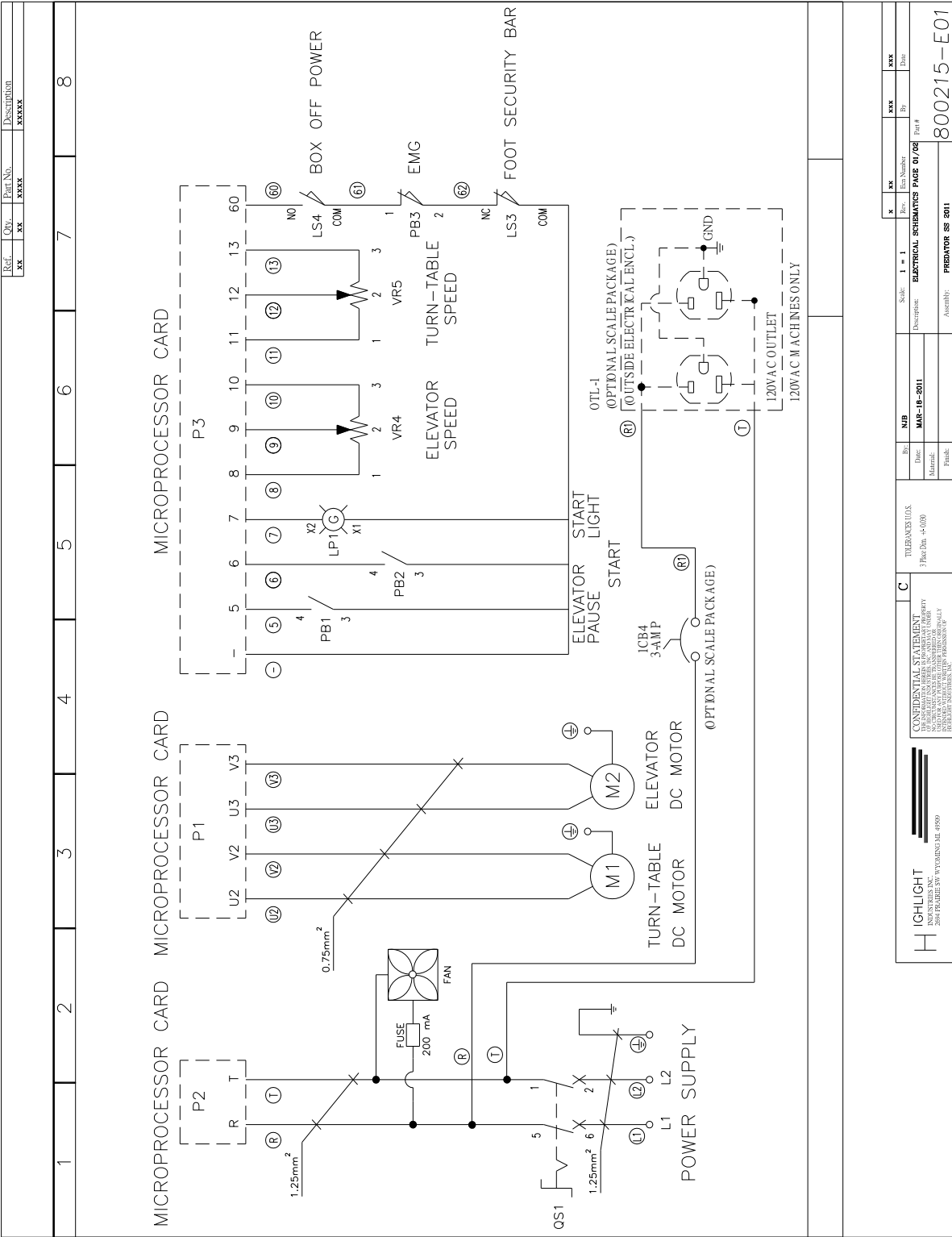
High Profile:

The table below provides the recommended spare parts list for the Predator SS **High Profile** Turntable Stretch Wrapper.

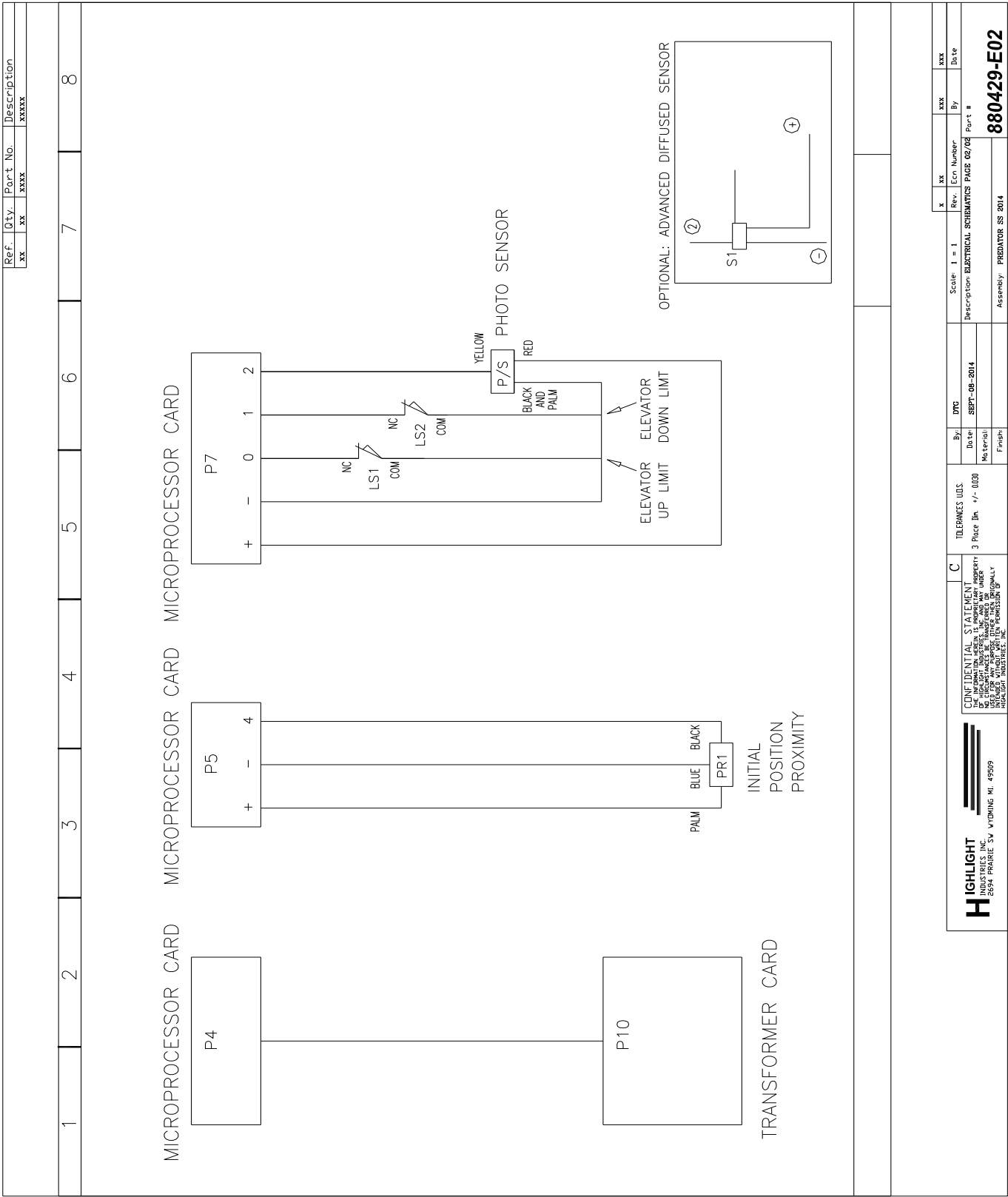
| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|------------------------------|-----|
| Electrical | 401362 | FUSE, 250 VAC, 1 AMP, GMA | 2 |
| Electrical | 403261 | FUSE, 250 VAC, 10 AMP, GMA | 2 |
| Electrical | 401365 | FUSE, 250 VAC, 5 AMP, GMA | 2 |
| Electrical | 404648 | FUSE, 250 VAC, 8 AMP, GMA | 2 |
| Electrical | 400639 | MICRO SWITCH YZ-8108 | 1 |
| Turntable | 301869 | SWIVEL CASTER | 1 |
| Turntable | 305285.2 | DRIVE CASTER | 1 |
| Turntable | 307018 | TURNTABLE DRIVE MOTOR –1/2HP | 1 |
| Turntable | 306934 | TURNTABLE DRIVE REDUCER | 1 |
| Tower | 300038 | CARRIAGE LIFT MOTOR – 1/4HP | 1 |
| Tower | 300030 | CARRIAGE LIFT REDUCER | 1 |

Electrical Drawings

Electrical Schematics



Electrical Schematics (continued)



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HIGHLIGHT INDUSTRIES, INC.

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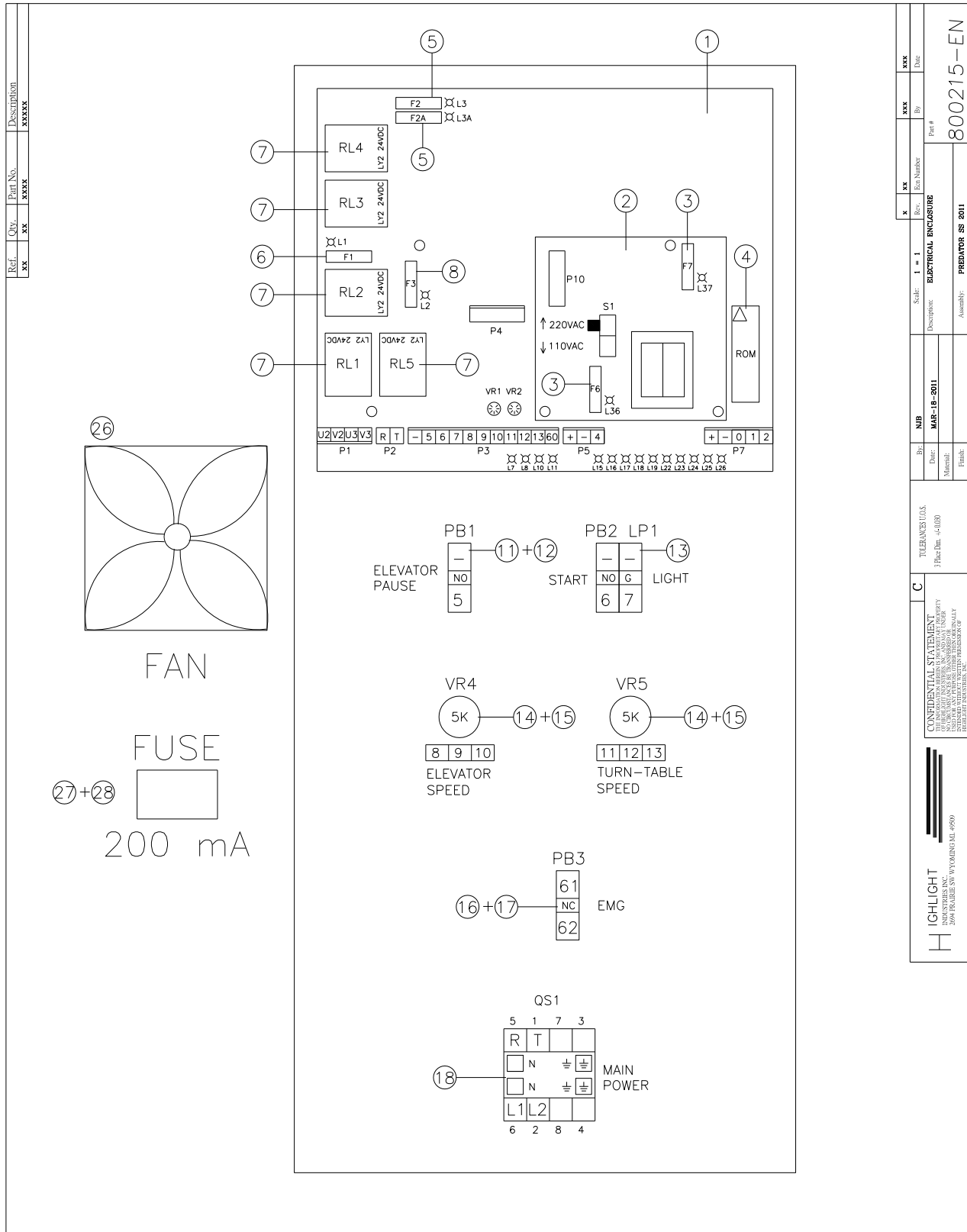
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Assembly

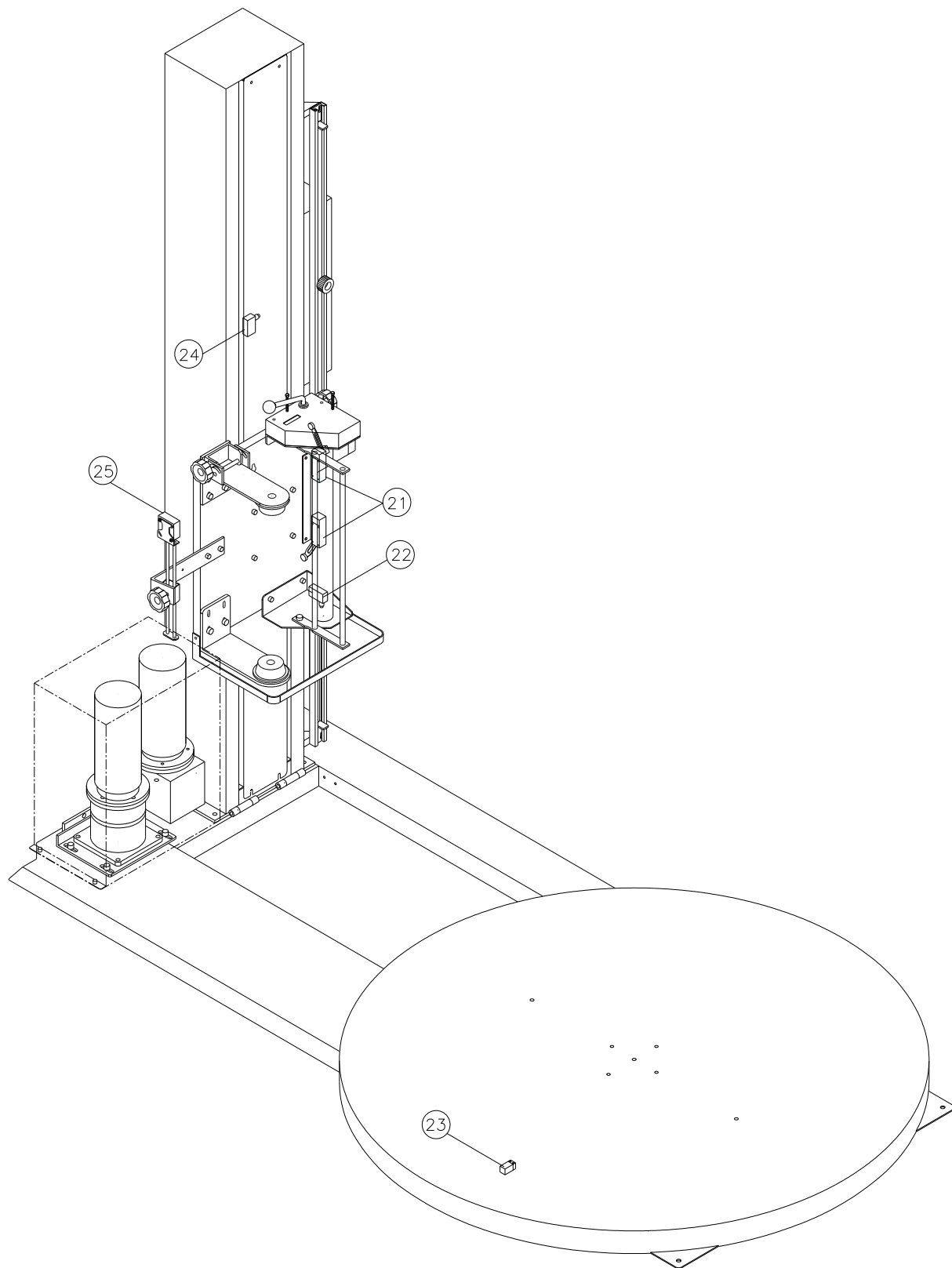
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Enclosure Layout



Sensor Layout (drawing for representational purposes only)

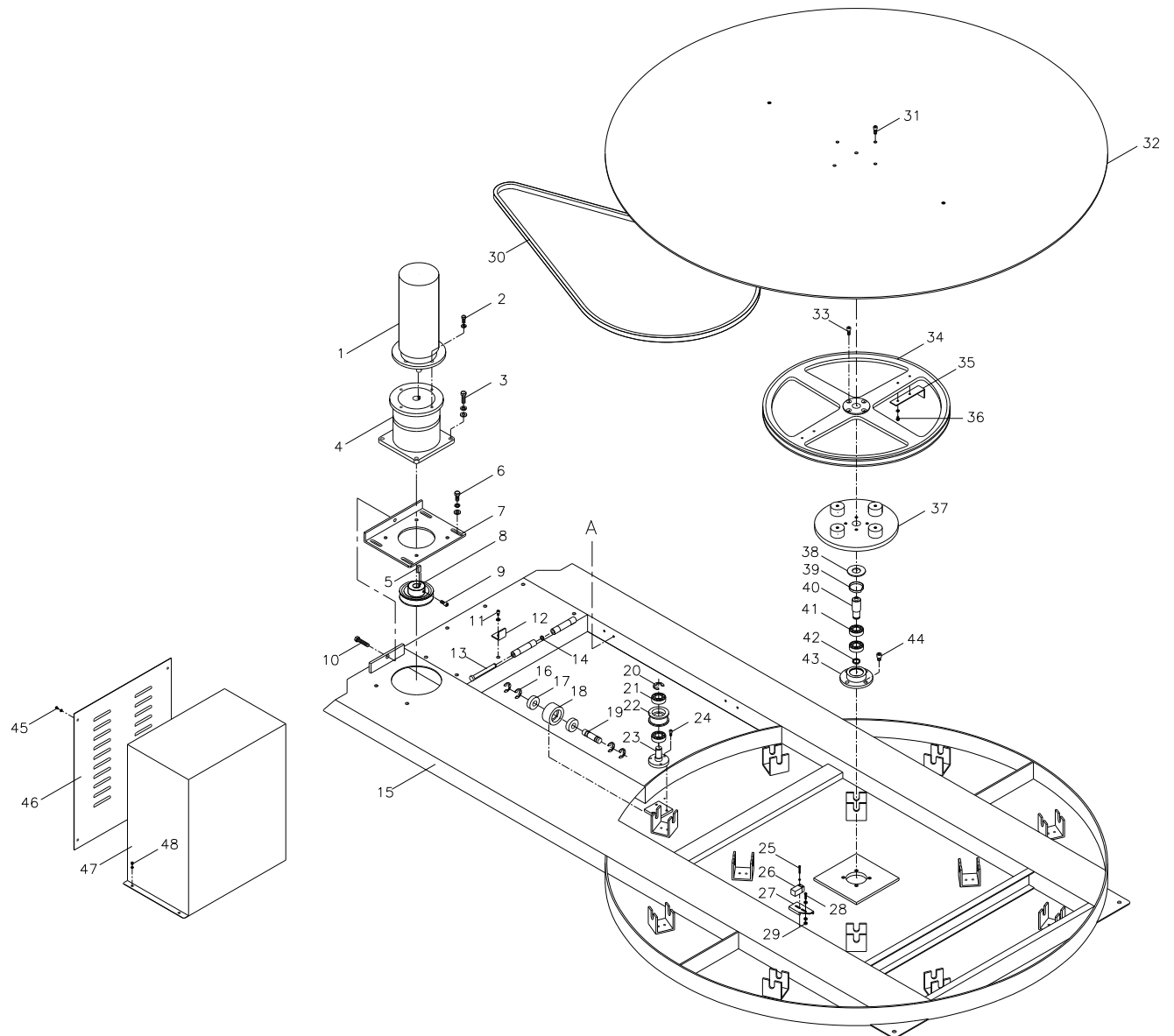


Electrical Parts List

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|---|-----|
| 1 | 401495 | MICROPROCESSOR CARD | 1 |
| 2 | 401361 | TRANSFORMER CARD | 1 |
| 3 | 401362 | FUSE, 250 VAC, 1 AMP, GMA | 2 |
| 4 | 401363 | EPROM | 1 |
| 5 | 403261 | FUSE, 250 VAC, 10 AMP, GMA | 2 |
| 6 | 401365 | FUSE, 250 VAC, 5 AMP, GMA | 2 |
| 7 | 401366 | RELAY LY2 DC24V | 5 |
| 8 | 404648 | FUSE, 250 VAC, 8 AMP, GMA | 1 |
| 11 | 401367 | BUTTON WHITE | 1 |
| 12 | 401368 | BUTTON SEAT CONTACTOR Nox1 | 1 |
| 13 | 400609 | AUTO RUN GREEN LAMP: COVER | 1 |
| | 400610 | SEAT | 1 |
| | 400611 | LIGHT | 1 |
| 14 | 401371 | KNOB RN-99F,ø6.4 | 2 |
| 15 | 400649 | VARIOUS RESISTOR 5K | 2 |
| 16 | 401372 | EMG. SWITCH | 1 |
| 17 | 401373 | BUTTON SEAT CONTACTOR NCx1 | 1 |
| 18 | 401374 | MAIN POWER SWITCH | 1 |
| 21 | 400639 | LIMIT SWITCH TZ-8108 | 2 |
| 22 | 400636 | LIMIT SWITCH TM-1307 | 1 |
| 23 | 404168 | Prox Switch, 18mm, 8mm Range, 4 WIRE, 10-30VDC, NO/NC NPN | 1 |
| 23a | 403867 | Cable, M12, 5-W Straight Female, 4-Meter Plug, Shielded | 1 |
| 24 | 400637 | LIMIT SWITCH TZ-7110 | 1 |
| 25 | 400643 | PHOTO SENSOR A3R-2MX(OPTION) | 1 |
| N/S | 310008 | BUTTON MEMBRANE LABEL FOR CONTROL PANEL | 1 |

Mechanical Drawings

Low Profile Turntable Frame Assembly

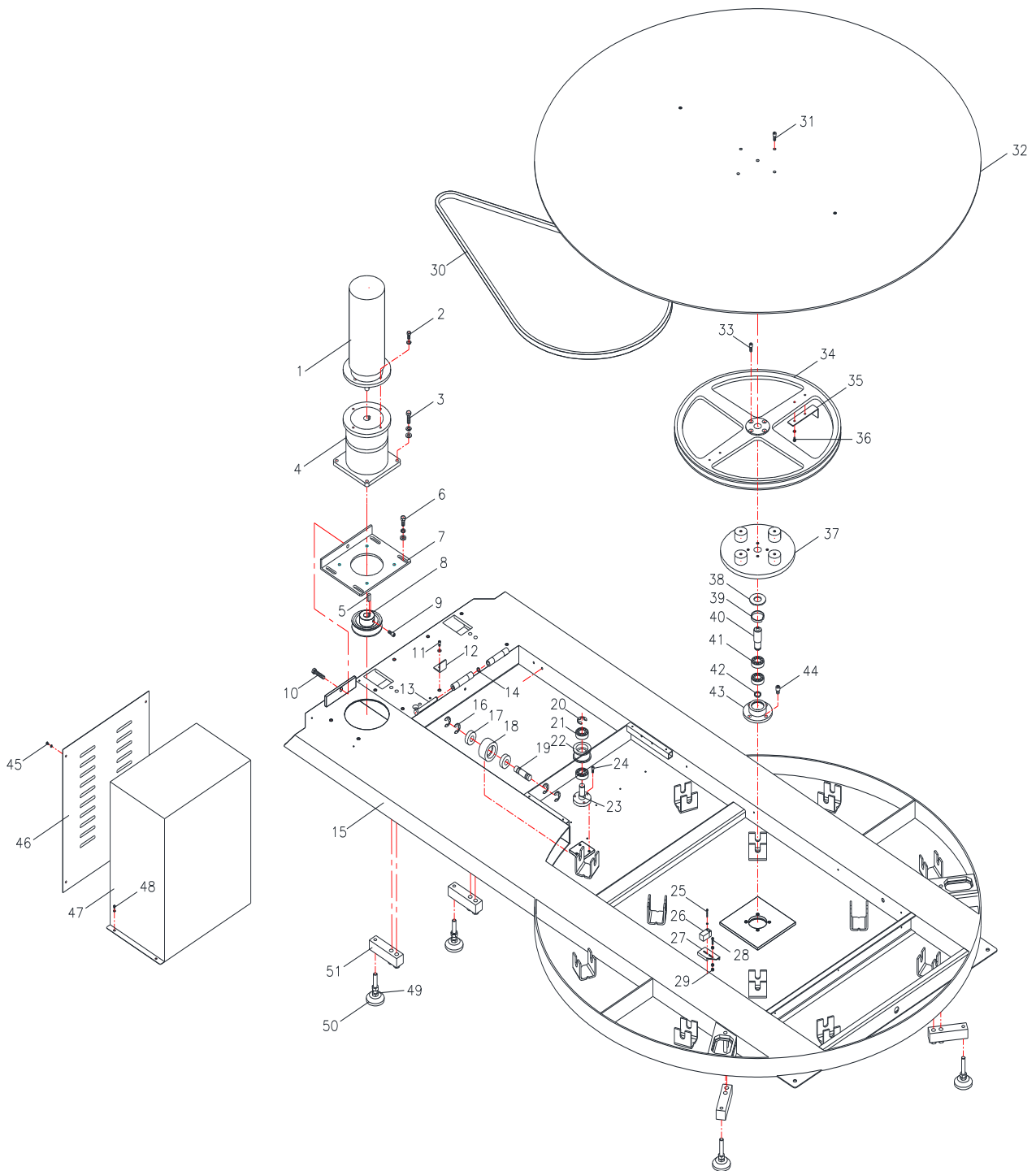


Low Profile Turntable Parts List

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|--------------------------------------|-----|
| 1 | 300037 | MOTOR VP3310D 1/4HP →1.5M | 1 |
| | 300040 | MOTOR VP3330D 1/2HP →1.8M | 1 |
| 2 | 200091 | SCREW M8X20L & W. | |
| 3 | 200092 | SCREW M10x20L & S.W. & W. | 4 |
| 4 | 300031 | SPEED REDUCER 1/4HP →1.5M | 1 |
| | 300032 | SPEED REDUCER 1/2HP →1.8M | 1 |
| 5 | 300002 | KEY 5X20L | 1 |
| 6 | 200093 | SCREW M10x25L & S.W. & W. | 4 |
| 7 | 500034 | MOTOR ADJUST SEAT →1.5M | 1 |
| | 500035 | MOTOR ADJUST SEAT →1.8M | 1 |
| 8 | 500014 | MOTOR PULLEY 4"22 →1.5M | 1 |
| | 500015 | MOTOR PULLEY 4"28 →1.8M | 1 |
| 9 | 207303 | SET SCREW, M8 x 10L | 2 |
| 10 | 200095 | SCREW M10x70L | 1 |
| 11 | 200077 | SCREW M6x12L & W. | 1 |
| 12 | 500083 | MOTOR BOX FIX PLATE | 1 |
| 13 | 500087 | PIN | 2 |
| 14 | 300006 | RING STW-10 | 2 |
| 15 | 600000 | TURNTABLE SEAT 1.5M | 1 |
| | 600001 | TURNTABLE SEAT 1.8M | 1 |
| 16 | 300009 | RING STW-17 | 48 |
| 17 | 300021 | BEARING 6203ZZ →1.5M | 24 |
| | 300021 | BEARING 6203ZZ →1.8M | 28 |
| 18 | 500010 | SUPPORTING PLASTIC WHEEL →1.5M | 12 |
| | 500010 | SUPPORTING PLASTIC WHEEL →1.8M | 14 |
| 19 | 500009 | SUPPORTING PLASTIC WHEEL SHAFT →1.5M | 12 |
| | 500009 | SUPPORTING PLASTIC WHEEL SHAFT →1.8M | 14 |
| 20 | 300009 | RING STW-17 | 1 |
| 21 | 300021 | BEARING 6203ZZ | 2 |
| 22 | 500011 | BELT LOCK PULLEY | 1 |
| 23 | 500012 | BELT LOCK PULLEY SHAFT | 1 |
| 24 | 200078 | SCREW M6x16L | 3 |
| 25 | 200098 | SCREW M3x25L & W. | 2 |

| | | | |
|----|--------|--|-----|
| 26 | 400641 | PROXIMITY SWITCH PS-05N-3M | 1 |
| 27 | 500013 | PROXIMITY SWITCH FIX SEAT | 1 |
| 28 | 200103 | SCREW M4x20L | 2 |
| 29 | 200128 | NUT M5 | 6 |
| 30 | 300013 | BELT B-172 →1.5M | 1 |
| | 300014 | BELT B-183 →1.8M | 1 |
| 31 | 200113 | SCREW M8x25L | 4 |
| 32 | 500004 | TURNTABLE PLATE 1.5M | 1 |
| | 500005 | TURNTABLE PLATE 1.8M | 1 |
| 33 | 200084 | SCREW M8x20L | 4 |
| 34 | 500007 | WHEEL 22" | 1 |
| 35 | 500006 | LOCATING PLATE | 1 |
| 36 | 200108 | SCREW M5x10L & W. | 4 |
| 37 | 500008 | PULLEY FIXING PLATE | 1 |
| 38 | 500085 | BELT PULLEY SEAT RING | 1 |
| 39 | 300012 | RING RTW-42 | 1 |
| 40 | 500084 | BELT PULLEY SHAFT | 1 |
| 41 | 300018 | BEARING 6004ZZ | 2 |
| 42 | 300010 | RING STW-20 | 1 |
| 43 | 500086 | BELT PULLEY BEARING SEAT | 1 |
| 44 | 200088 | SCREW M10x16L | 4 |
| 45 | 200100 | SCREW M4x8L & W. | 4 |
| 46 | 500081 | MOTOR COVER →1.5M | 1 |
| | 500082 | MOTOR COVER →1.8M | 1 |
| 47 | 600028 | TURNTABLE MOTOR BOX 1.5M | 1 |
| | 600029 | TURNTABLE MOTOR BOX 1.8M | 1 |
| 48 | 200100 | SCREW M4x8L & W. | 2 |
| 49 | 600038 | RAMP (FOR 60" TURNTABLE - NOT SHOWN) | OPT |
| 50 | 600039 | RAMP PORCH – 24" (FOR 60" TURNTABLE - NOT SHOWN) | OPT |
| 51 | 602297 | RAMP PORCH – 48" (FOR 60" TURNTABLE - NOT SHOWN) | OPT |

Low Profile Turntable with Optional Integrated Scale Frame Assembly

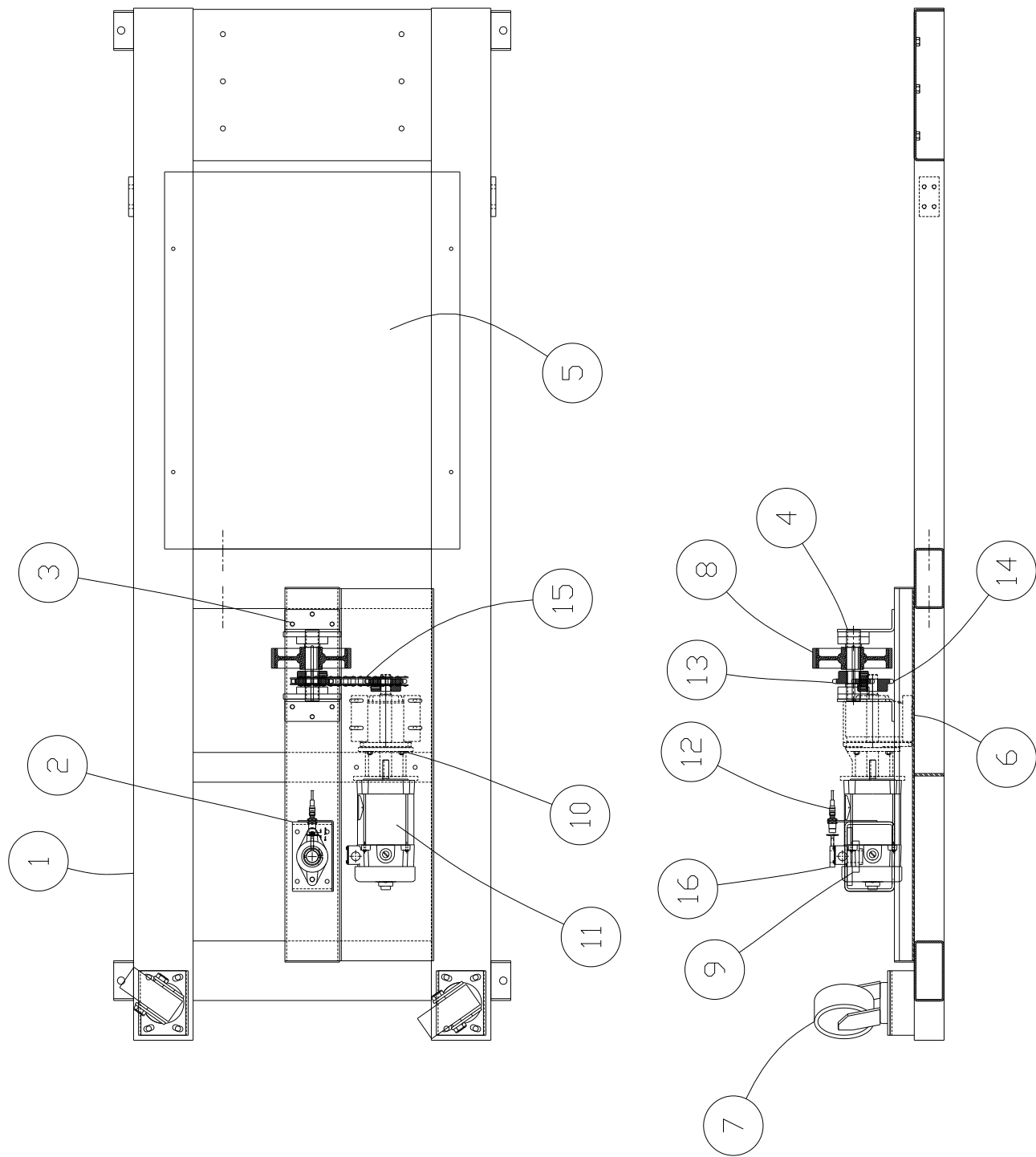


Low Profile Turntable with Optional Integrated Scale Parts List

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|------------------------|---|-----|
| 1 | 300037 | MOTOR VP3310D 1/4HP →1.5M | 1 |
| 2 | 200091 | SCREW M8X20L & W. | |
| 3 | 200092 | SCREW M10x20L & S.W. & W. | 4 |
| 4 | 300031 | SPEED REDUCER 1/4HP →1.5M | 1 |
| 5 | 300002 | KEY 5X20L | 1 |
| 6 | 200093 | SCREW M10x25L & S.W. & W. | 4 |
| 7 | 500034 | MOTOR ADJUST SEAT →1.5M | 1 |
| 8 | 500014 | MOTOR PULLEY 4"22 →1.5M | 1 |
| 9 | 207303 | SET SCREW, M8 x 10L | 2 |
| 10 | 200095 | SCREW M10x70L | 1 |
| 11 | 200077 | SCREW M6x12L & W. | 1 |
| 12 | 500083 | MOTOR BOX FIX PLATE | 1 |
| 13 | 500087 | PIN | 2 |
| 14 | 300006 | RING STW-10 | 2 |
| 15 | 600424 | TURNTABLE SEAT WITH INTEGRAL SCALE - 1.5M | 1 |
| 16 | 300009 | RING STW-17 | 48 |
| 17 | 300021 | BEARING 6203ZZ →1.5M | 24 |
| 18 | 500010 | SUPPORTING PLASTIC WHEEL →1.5M | 12 |
| 19 | 500009 | SUPPORTING PLASTIC WHEEL SHAFT →1.5M | 12 |
| 20 | 300009 | RING STW-17 | 1 |
| 21 | 300021 | BEARING 6203ZZ | 2 |
| 22 | 500011 | BELT LOCK PULLEY | 1 |
| 23 | 500012 | BELT LOCK PULLEY SHAFT | 1 |
| 24 | 200078 | SCREW M6x16L | 3 |
| 25 | 200098 | SCREW M3x25L & W. | 2 |
| 26 | 400641 | PROXIMITY SWITCH PS-05N-3M | 1 |
| 27 | 500013 | PROXIMITY SWITCH FIX SEAT | 1 |
| 28 | 200103 | SCREW M4x20L | 2 |
| 29 | 200128 | NUT M5 | 6 |
| 30 | 300013 | BELT B-172 →1.5M | 1 |
| 31 | 200113 | SCREW M8x25L | 4 |
| 33 | 200084 | SCREW M8x20L | 4 |

| | | | |
|----|-------------|-------------------------------------|-----|
| 34 | 500007 | WHEEL 22" | 1 |
| 35 | 500006 | LOCATING PLATE | 1 |
| 36 | 200108 | SCREW M5x10L & W. | 4 |
| 37 | 500008 | PULLEY FIXING PLATE | 1 |
| 38 | 500085 | BELT PULLEY SEAT RING | 1 |
| 39 | 300012 | RING RTW-42 | 1 |
| 40 | 500084 | BELT PULLEY SHAFT | 1 |
| 41 | 300018 | BEARING 6004ZZ | 2 |
| 42 | 300010 | RING STW-20 | 1 |
| 43 | 500086 | BELT PULLEY BEARING SEAT | 1 |
| 44 | 200088 | SCREW M10x16L | 4 |
| 45 | 200100 | SCREW M4x8L & W. | 4 |
| 46 | 500081 | MOTOR COVER →1.5M | 1 |
| 47 | 600028 | TURNTABLE MOTOR BOX 1.5M | 1 |
| 48 | 200100 | SCREW M4x8L & W. | 2 |
| 49 | 207031 | JAM NUT – M12 | 4 |
| 50 | KA0400470-1 | LOAD CELL FOOT | 4 |
| 51 | 306275 | LOAD CELL – SBS-1.5T | 4 |
| 52 | 303149 | SUMMING BOARD – NOT SHOWN | 1 |
| 53 | 600947 | RAMP – INTEGRATED SCALE (NOT SHOWN) | OPT |

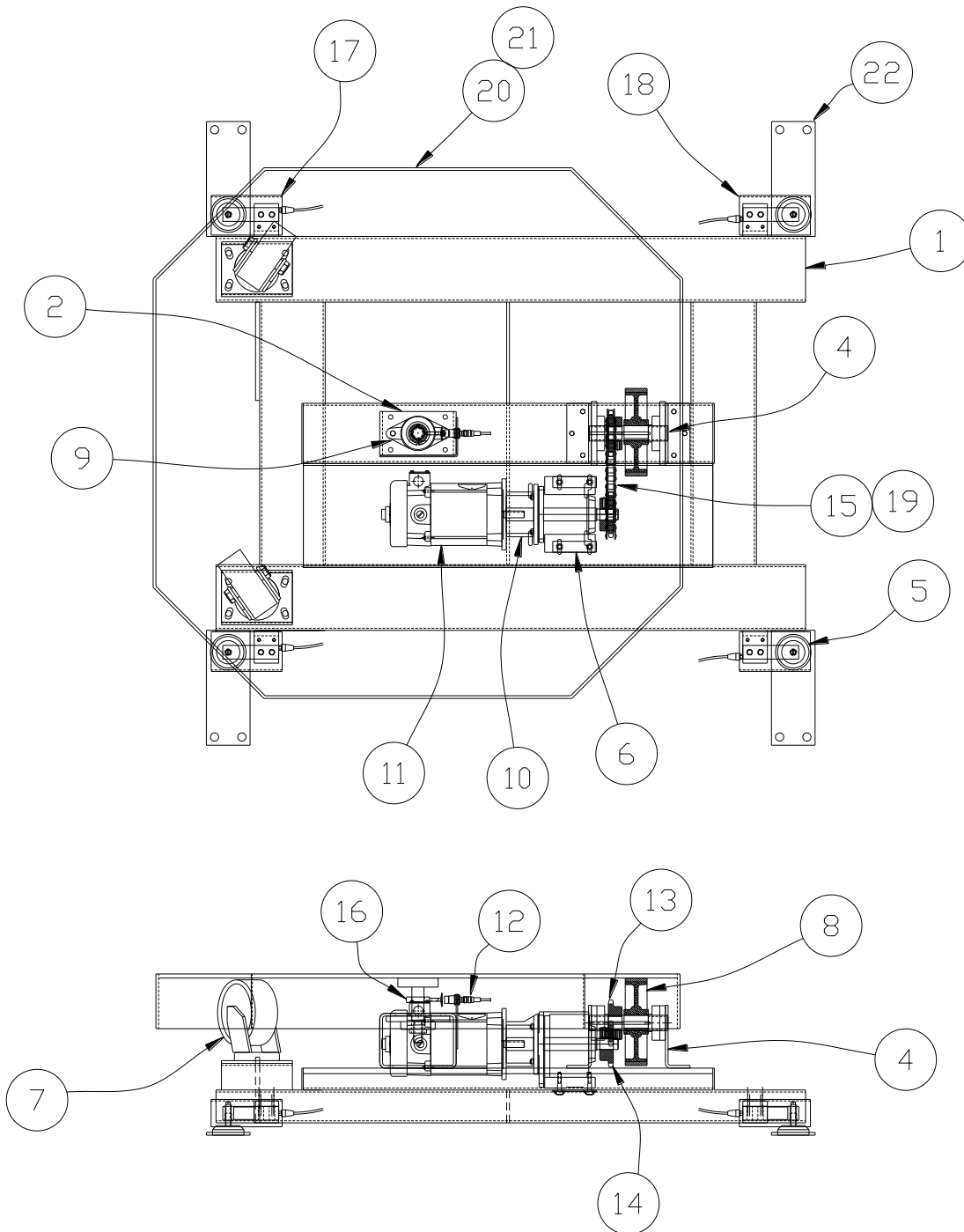
High Profile Turntable Frame Assembly



Turntable Parts List

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|---|-----|
| 1 | 645394 | High Profile Turntable Frame Weldment | 1 |
| 2 | 645414 | Pivot Brace Weldment | 1 |
| 3 | 535492.2 | Support Bracket | 2 |
| 4 | 525027 | 1-3/16" Drive Shaft | 1 |
| 5 | 535146 | Frame Cover | 1 |
| 6 | 600337 | Reducer Bolt Plate Weldment | 2 |
| 7 | 301869 | Swivel Caster | 2 |
| 8 | 305285.2 | Drive Caster | 1 |
| 9 | 300506 | Bearing, 1-3/16" 2 bolt flange bearing | 3 |
| 10 | 306934 | Reducer, 30.11:1 | 1 |
| 11 | 307018 | Motor, 1/2 HP 90 VDC | 1 |
| 11a | 401562 | Male motor cable connector | 1 |
| 11b | 404739 | Male connector pin | 3 |
| 12 | 404168 | Prox Switch, 18mm, 8mm Range, 4 WIRE, 10-30VDC, NO/NC NPN | 1 |
| 12a | 403867 | Cable, M12, 5-W Straight Female, 4-Meter Plug, Shielded | 1 |
| 13 | 300505 | Sprocket, 60BS16x1-3/16 | 1 |
| 14 | 305684 | Sprocket, 60BS16x1 | 1 |
| 15 | 306291 | HPTT Drive Chain | 1 |
| 16 | 645384 | Prox Trip Weldment | 1 |
| * | 305634 | 1/4" x 3 1/2" key | 1 |
| * | 407375 | 1/2" Conduit Body Cover | 1 |
| * | 407371 | 1/2" T-Type Conduit Body | 1 |
| * | 407224 | Cord Grip, Large | 2 |
| * | 407233 | 1/2" Jiffy Clamp | 3 |
| * | 407460 | 1/4" Cable Clip | 6 |
| * | 407222 | Cord Grip Small | 1 |
| * | 407377 | 1/2" Conduit Body Gasket | 1 |
| | | " * " not shown on drawing | |

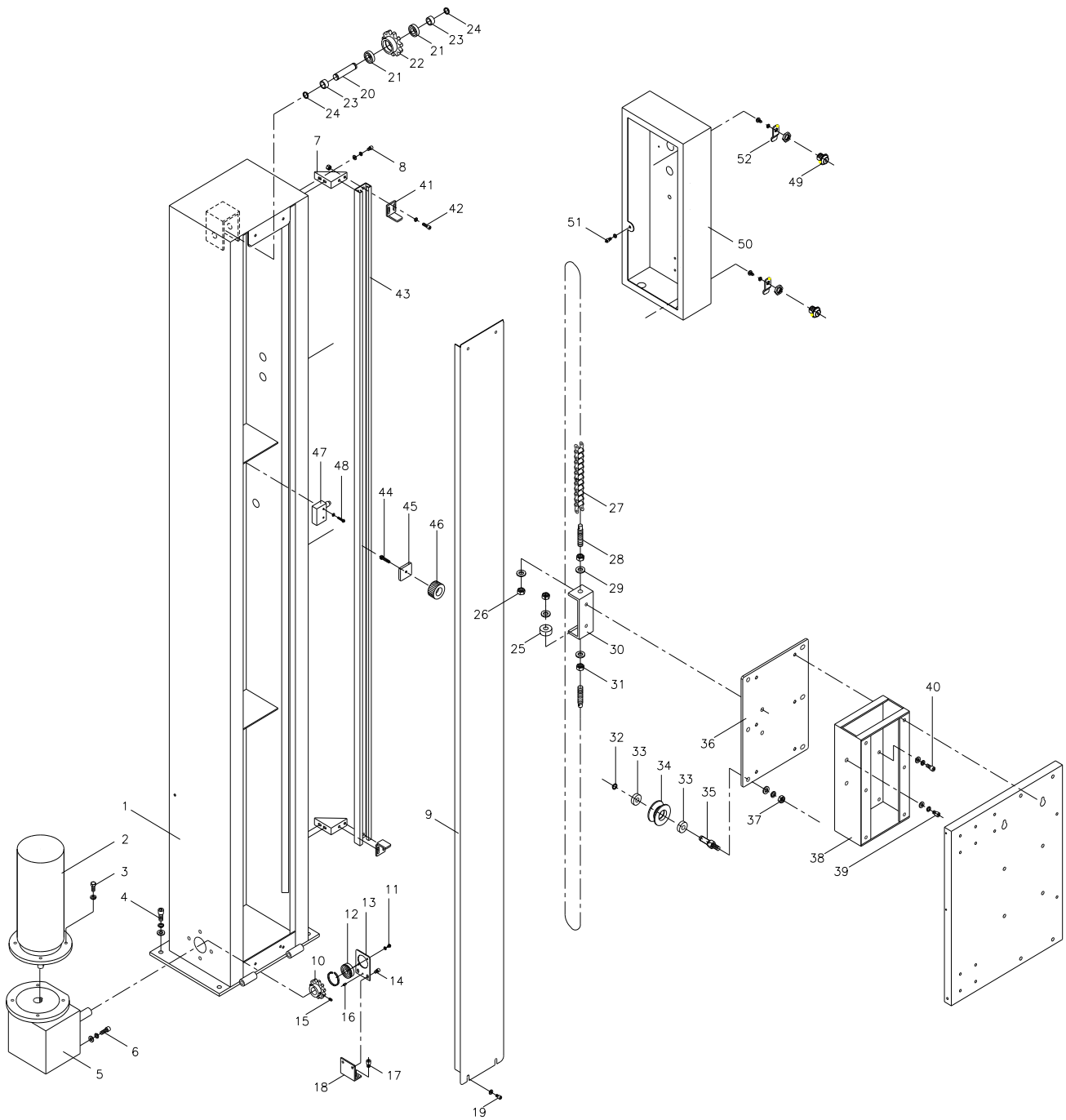
High Profile Turntable with Optional Integrated Scale Frame Assembly



High Profile Turntable with Optional Integrated Scale Parts List

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|---|-----|
| 1 | 645974 | Split Frame Scale Base Weldment | 1 |
| 2 | 645414 | Pivot Brace Weldment | 1 |
| 3 | 535492.2 | Support Bracket | 2 |
| 4 | 525027 | 1-3/16" Drive Shaft | 1 |
| 5 | 302759 | Load Cell Kit | 1 |
| 6 | 645944 | Reducer Bolt Plate Weldment | 2 |
| 7 | 301869 | Swivel Caster | 2 |
| 8 | 305285.2 | Drive Caster | 1 |
| 9 | 300506 | Bearing, 1-3/16" 2 bolt flange bearing | 3 |
| 10 | 305636 | Reducer, 28:1 | 1 |
| 11 | 307018 | Motor, 1/2 HP 90 VDC | 1 |
| 12 | 404168 | Prox Switch, 18mm, 8mm Range, 4 WIRE, 10-30VDC, NO/NC NPN | 1 |
| 12a | 403867 | Cable, M12, 5-W Straight Female, 4-Meter Plug, Shielded | 1 |
| 13 | 300505 | Sprocket, 60BS16x1-3/16 | 1 |
| 14 | 305684 | Sprocket, 60BS16x1 | 1 |
| 15 | 305171 | Chain #60-1 | 2 |
| 16 | 645384 | Prox Trip Weldment | 1 |
| 17 | 503301.2 | RH Loadcell Cover | 2 |
| 18 | 526506.2 | LH Loadcell Cover | 2 |
| 19 | 305176 | Master Link, #60-1 | 1 |
| 20 | 645002 | Turntable Weldment | 1 |
| 21 | 525249 | Film Catch | 1 |
| 22 | 535378 | Anchor Feet | 4 |
| * | 300353 | Scale Display | 1 |
| * | 305634 | 1/4" x 3 1/2" key | 1 |
| * | 407375 | 1/2" Conduit Body Cover | 1 |
| * | 407371 | 1/2" T-Type Conduit Body | 1 |
| * | 407224 | Cord Grip, Large | 2 |
| * | 407233 | 1/2" Jiffy Clamp | 3 |
| * | 407460 | 1/4" Cable Clip | 6 |
| * | 407222 | Cord Grip Small | 1 |
| * | 407377 | 1/2" Conduit Body Gasket | 1 |
| | | " * " not shown on drawing | |

Tower Assembly



Tower Parts List

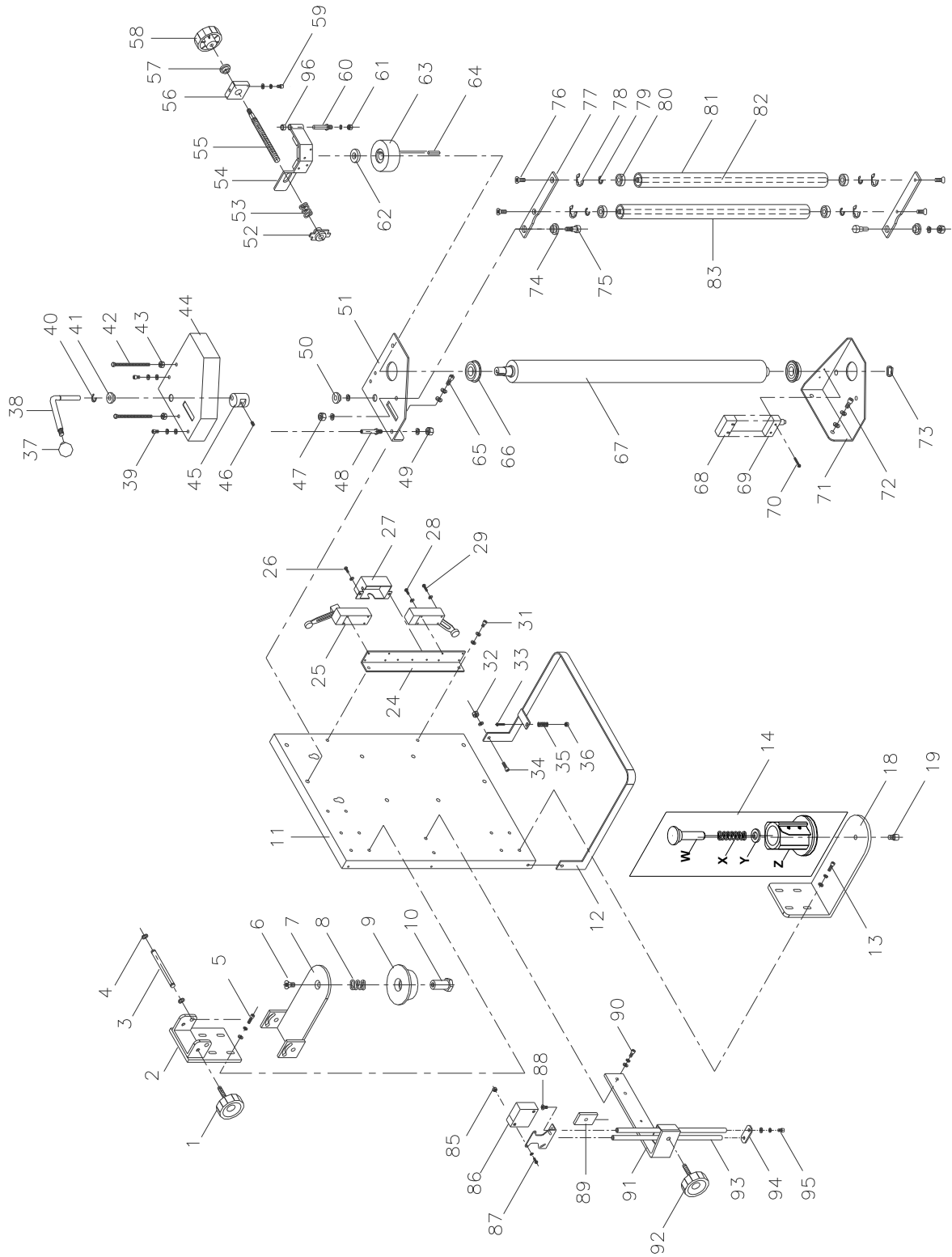
| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|--|-----|
| 1 | 500133 | TOWER - STD | 1 |
| | 500317 | TOWER - 110 | 1 |
| 2 | 300038 | ELEVATOR UNIT MOTOR VP3310D | 1 |
| 3 | 200091 | SCREW M8x20L & S.W. | 4 |
| 4 | 200090 | SCREW M10x25L & S.W. & W. | 5 |
| 5 | 300030 | ELEVATOR UNIT SPEED REDUCER VTM-40 | 1 |
| 6 | 200085 | SCREW M8x25L & S.W. & W. | 4 |
| 7 | 500135 | CHANNEL SUPPORT | 2 |
| 8 | 200078 | SCREW M6x16L & S.W. & W. | 4 |
| 9 | 500136 | CHAIN WHEEL COVER - STD | 1 |
| | 500290 | CHAIN WHEEL COVER - 110 | 1 |
| 10 | 500090 | UP & DOWN CHAIN WHEEL (LOWER) 11 TEETH | 1 |
| 11 | 200099 | SCREW M4x6L & W. | 2 |
| 12 | 300020 | BEARING 6202-2NR | 1 |
| 13 | 500102 | SPEED REDUCER BEARING SEAT | 1 |
| 14 | 200076 | SCREW M6x10L & W. | 2 |
| 15 | 200120 | SCREW M6x8L | 1 |
| 16 | 300000 | PIN ø4X8 | 1 |
| 17 | 200082 | SCREW M8x12L | 2 |
| 18 | 500103 | BEARING ADJUST SEAT | 1 |
| 19 | 200077 | SCREW M6x12L & W. | 4 |
| 20 | 500003 | UPPER CHAIN WHEEL SHAFT | 1 |
| 21 | 300017 | BEARING 6002ZZ | 2 |
| 22 | 500089 | UPPER CHAIN WHEEL | 1 |
| 23 | 500093 | RING | 2 |
| 24 | 300008 | RING STW-15 | 2 |
| 25 | 500104 | ADJUST BAR WASHER | 1 |
| 26 | 200140 | NUT M12 | 1 |
| 27 | 300049 | CHAIN - STD | 1 |
| | 500488 | CHAIN - 110 | 1 |
| 28 | 500025 | ELEVATOR UNIT CHAIN SCREW SHAFT | 2 |
| 29 | 200147 | WASHER M12 | 4 |
| 30 | 500092 | CHAIN ADJUST SEAT | 1 |

| | | | |
|-----|--------|---|---|
| 31 | 200133 | NUT M12 | 3 |
| 32 | 300007 | RING STW-12 | 6 |
| 33 | 300016 | BEARING 6001ZZ | 8 |
| 34 | 500090 | UP & DOWN DRIVING WHEEL | 4 |
| 35 | 500091 | UP & DOWN DRIVING WHEEL SHAFT | 4 |
| 36 | 500040 | CHAIN WHEEL SEAT | 1 |
| 37 | 200131 | NUT M10 & S.W. & W. | 6 |
| 38 | 600008 | ELEVATOR UNIT SEAT (INNER) | 1 |
| 39 | 200084 | SCREW M8x20L & S.W. & W. | 2 |
| 40 | 200083 | SCREW M8x16L & S.W. & W. | 6 |
| 41 | 500138 | LIMIT PLATE | 2 |
| 42 | 200125 | SCREW M6x16L & S.W & NUT | 4 |
| 43 | 500139 | CHANNEL - STD | 1 |
| | 500140 | CHANNEL - 110 | 1 |
| 44 | 200078 | SCREW M6x16L | 1 |
| 45 | 500141 | FIX PIECE | 1 |
| 46 | 500142 | HANDEL WHEEL | 1 |
| 47 | 400637 | LIMIT SWITCH TZ-7110 | 1 |
| 48 | 200105 | SCREW M4x30L & W | 2 |
| 49 | 300041 | LOCK w/ KEY | 2 |
| 50 | 500143 | CONTROL BOX | 1 |
| 50a | 310008 | BUTTON MEMBRANE LABEL FOR CONTROL PANEL | 1 |
| 51 | 200076 | SCREW M6x10L & S.W. | 1 |
| 52 | 300048 | LOCK LATCH PLATE | 2 |

When machine has the optional integrated scale the following parts will be included on the tower: receptacle

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|-----------------------------|-----|
| 53 | 300353 | SCALE DISPLAY | 1 |
| 54 | 504471 | SCALE POWER PLUG RECEPTACLE | 1 |
| 55 | 504470 | POWER PLUG COVER | 1 |

Film Carriage Assembly



Film Carriage Parts List

| Machine Section | HLI Part Number | Item Description | Qty |
|-----------------|-----------------|-------------------------------|-----|
| 1 | 500000 | HANDLE | 1 |
| 2 | 500144 | FILM FIX SEAT(UPPER) | 1 |
| 3 | 500145 | SHAFT | 1 |
| 4 | 300006 | RING STW-10 | 2 |
| 5 | 200079 | SCREW M6*20L & S.W. & W. | 4 |
| 6 | 200089 | SCREW M10*20L | 1 |
| 7 | 500146 | FILM MOVING SHAFT | 1 |
| 8 | 500147 | FILM SEAT SPRING | 1 |
| 9 | 500148 | FILM SEAT(UPPER) | 1 |
| 10 | 500101 | FILM SEAT SHAFT | 1 |
| 11 | 500149 | ELEVATOR UNIT SEAT(OUTER)-20" | 1 |
| | 504260 | ELEVATOR UNIT SEAT(OUTER)-30" | 1 |
| 12 | 500150 | PEDAL | 1 |
| 13 | 200079 | SCREW M6*20L & S.W. & W. | 4 |
| 14 | 700072 | LOWER CORE HOLDER ASSEMBLY | 1 |
| | W | FILM SEAT SHAFT | |
| | X | SPRING | |
| | Y | BEARING NTB/A51730 | |
| | Z – 500107 | FILM FIX SEAT | |
| | Za – 500111 | BRAKE | |
| | Zb – 500109 | FILM BRAKE PLATE | |
| | Zd – 500112 | WASHER | |
| 18 | 500151 | FILM FIX SEAT(LOWER) | 1 |
| 19 | 200089 | SCREW M10*20L | 1 |
| 23 | 200079 | SCREW M6*20L & S.W. & W. | 2 |
| 24 | 500152 | LIMIT SWITCH SEAT | 1 |
| 25 | 400639 | LIMIT SWITCH TZ-8108 | 2 |
| 26 | 200101 | SCREW M4*12L | 2 |
| 27 | 500130 | TERMINAL COVER | 1 |
| 28 | 200102 | SCREW M4*16L | 4 |
| 29 | 200101 | SCREW M4*12L | 4 |
| 31 | 200077 | SCREW M6*12L & S.W. & W. | 2 |
| 32 | 200137 | NUT M6 | 2 |

| | | | |
|----|--------|--------------------------|---|
| 33 | 200103 | SCREW M4*20L | 1 |
| 34 | 200079 | SCREW M6*20L | 2 |
| 35 | 500016 | SPRING | 1 |
| 36 | 200127 | NUT M4 | 2 |
| 37 | 500913 | HANDLE KNOB | 1 |
| 38 | 500153 | HANDLE | 1 |
| 39 | 200077 | SCREW M6*12L & S.W. & W. | 2 |
| 40 | 300006 | RING STW-10 | 1 |
| 41 | 500154 | RING | 1 |
| 42 | 200157 | SCREW M6*100L | 2 |
| 43 | 200129 | NUT M6 | 4 |
| 44 | 500155 | STRETCH SEAT COVER(UPPE) | 1 |
| 45 | 500156 | WHEEL | 1 |
| 46 | 200121 | SCREW M6*10L | 1 |
| 47 | 200130 | NUT M8 & S.W. | 2 |
| 48 | 500157 | STRETCH SEAT SHAFT | 1 |
| 49 | 200130 | NUT M8 & W. | 1 |
| 50 | 500158 | RING | 1 |
| 51 | 500159 | UPPER STRETCH SEAT | 1 |
| 52 | 500160 | TENSION ADJUST SEAT | 1 |
| 53 | 500161 | STRETCH SPRING | 1 |
| 54 | 500162 | BRAKE PLATE | 1 |
| 55 | 500163 | TENSION ADJUST SCREW | 1 |
| 56 | 500164 | GEAR SCREW FIX SEAT | 1 |
| 57 | 500154 | RING | 1 |
| 58 | 500000 | HANDLE | 1 |
| 59 | 200077 | SCREW M6*12L & S.W. & W. | 2 |
| 60 | 500165 | BREAK PLATE SHAFT | 1 |
| 61 | 200129 | NUT M6 & S.W. | 2 |
| 62 | 500166 | BREAK WHEEL FIX SHAFT | 1 |
| 63 | 500167 | BRAKE WHEEL | 1 |
| 64 | 300002 | PIN 5*5*20L | 1 |
| 65 | 200084 | SCREW M8*20L & S.W. & W. | 2 |
| 66 | 300051 | BEARING 6004ZZ-NR | 2 |
| 67 | 500168 | PRE-STRETCH SHAFT-20" | 1 |
| | 504261 | PRE-STRETCH SHAFT-30" | 1 |

| | | | |
|----|--------|-----------------------------------|---|
| 68 | 400640 | WIRE PROTECTOR | 1 |
| 69 | 400636 | LIMIT SWITCH TM-1307 | 1 |
| 70 | 200104 | SCREW M4*25L | 2 |
| 71 | 500169 | LOWER STRETCH SEAT | 1 |
| 72 | 200084 | SCREW M8*20L & S.W. & W. | 2 |
| 73 | 300010 | RING STW-20 | 1 |
| 74 | 500158 | RING | 2 |
| 75 | 500170 | MOVING SHAFT PIN | 2 |
| 76 | 200833 | SCREW M6*12L | 4 |
| 77 | 500171 | MOVING SHAFT | 1 |
| | 500172 | MOVING SHAFT | 1 |
| 78 | 300052 | RING STW-22 | 4 |
| 79 | 300006 | RING STW-10 | 4 |
| 80 | 300015 | BEARING 6000ZZ | 4 |
| 81 | 500173 | IDLER ROLLER-20" | 1 |
| | 504262 | IDLER ROLLER-30" | 1 |
| 82 | 500174 | IDLER ROLLER SHAFT-20" | 2 |
| | 504263 | IDLER ROLLER SHAFT-30" | 2 |
| 83 | 500175 | IDLER ROLLER-20" | 1 |
| | 504264 | IDLER ROLLER-30" | 1 |
| 85 | 200127 | NUT M4 (OPTION) | 2 |
| 86 | 400643 | PHOTO SENSOR A3R-2MX (OPTION) | 1 |
| 87 | 200101 | SCREW M4x12L & W. (OPTION) | 2 |
| 88 | 200110 | SCREW M6x12L (OPTION) | 2 |
| 89 | 500094 | FIX PIECE (OPTION) | 1 |
| 90 | 200079 | SCREW M6*20L & S.W. & W. (OPTION) | 2 |
| 91 | 500176 | PHOTO SENSOR ADJUST SEAT (OPTION) | 1 |
| 92 | 500000 | HANDLER (OPTION) | 1 |
| 93 | 500095 | PHOTO SENSOR ADJUST BAR (OPTION) | 2 |
| 94 | 500096 | CONNECTING PLATE (OPTION) | 1 |
| 95 | 200077 | SCREW M6*12L & S.W. & W. (OPTION) | 2 |
| 96 | 304629 | SPACER, ANTI-SQUEAK | 1 |

Advanced Infrared Eye – Optional

| Ref. | Qty. | Part No. | Description |
|------|------|----------|-----------------|
| 1 | 1 | 406640 | IR EYE |
| 2 | 1 | 403867 | CABLE |
| 3 | 1 | 503518.2 | BRACKET |
| NS | 4 | 407218 | BUTT CONNECTOR |
| NS | 2 | 201198 | SHCS, M6 x 35 |
| NS | 2 | 200498 | Nut, Nyloc, M5 |
| NS | 1 | 200867 | Instruction Set |

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Highlight Industries, Inc.

Predator SS Turntable Stretch Wrapper Operation Manual

Notes

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