

MAINTENANCE

7.1 Daily and Weekly Maintenance

Daily and Weekly Maintenance	
Pneumatic Lubricator	
Application/Environment	Lubricant
Standard Cold/Freezer Food Grade	Summit HySyn FG-32
• Tighten, replace loose fasteners.	
• Look for oil leaks around the speed reducers.	
• Look for air leaks.	
• Make sure that the pneumatic supply and pressure settings are correct.	
• Look for, drain the water in the air supply filter.	
• Listen for unusual noise during operation.	
• Clean the Cutter Wire. Use the “Pulse” function to clean the wire.	
• Adjust the tension on the Cutter Wire. Adjust, replace the wire.	
Note: The cutter wire does not touch the film when it cuts.	
• Examine, fill the pneumatic lubricator.	

7.1.1 Pallet Grip

Pallet Grip®
• Remove the debris from in and around the Pallet Grip.
• Make sure that the tilting roller moves freely and retracts fully.
• Examine the film groove roller and make sure that it turns freely.
• Make sure that the film moves over the groove in the roller as the load wraps.

7.2 Monthly Maintenance

• Examine the FDS lift belt for wear.
• Examine the Wrap Arm drive belt for correct tension and wear.
• Examine the pre-stretch chains and sprockets for wear.
• Examine the conveyor chain for wear.
• Lubricate the chains with SAE 30 oil.
• Examine, adjust the clevis connections on the air cylinder.

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7.3 Bi-Annual Maintenance

	CAUTION Do not use a solution to clean the slip ring. The ring self-lubricates and solutions can cause damage to the component.
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Bi-Annual Maintenance		
Note: We recommend that personnel wear a dust mask for this step.		
Remove the cover of the electrical slip ring in the top frame. Use clean, dry, compressed air to remove the debris.		
Examine, torque the bolts on the leg and the anchors. Refer to Torque Reference Chart in section 5.		
Lubricate the wrap arm ring bearing with 7.4 ml (.25 oz) of grease (approximately 4 pumps of a standard grease gun). The grease fitting is on the pneumatic assembly. Turn the wrap arm when you lubricate the ring bearing. This can be done during standard operation.		
Examine, lubricate the bearings on the film clamp.		
Refer to section 3 - Options for other lubrication requirements.		
Environment	Lubricant	Temperature Range
Standard/Cold/Freezer	Shell (Fuchs) Cassida EPS 2	-35° to +120° C
Clean Design/Food Grade	Or Aluminum Complex Equivalent	(-31° to +248° F)

	CAUTION Do not apply more lubrication than the quantity shown to lubricate the ring bearing. Too much lubrication can cause damage to the bearing seal. If the lubrication leaks out, it can cause the drive belt to slip.
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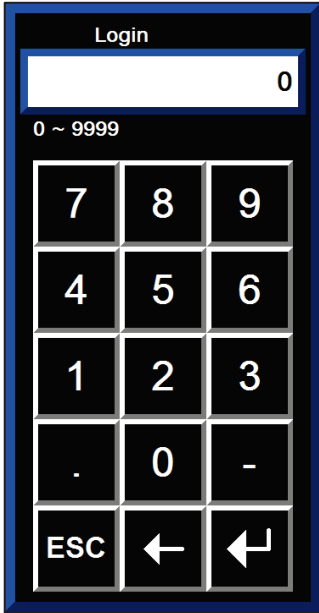
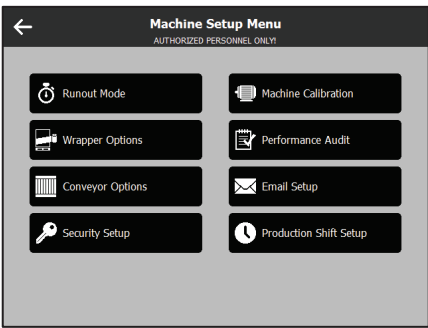
7.4 Annual Maintenance

Lubrication:
Drain the oil from and fill the speed reducers with Klubersynth UH1 6-460 synthetic oil.
- Wrap Arm Rotation - FDS Lift Drive

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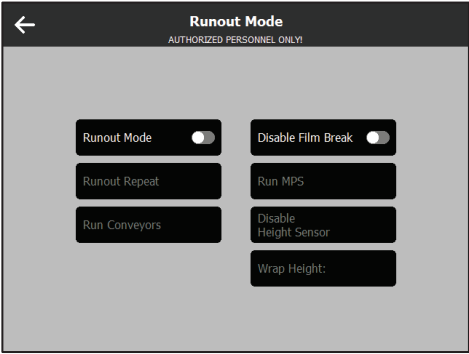
7.5 Control Menus

7.5.1 “Login”

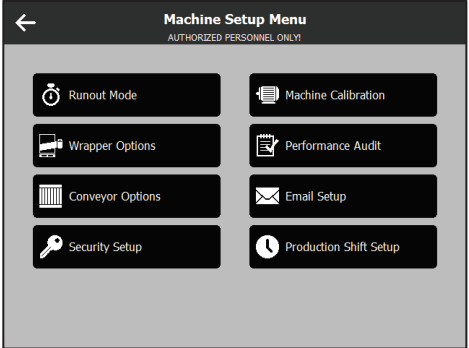
	“Login” The user access includes the Default, Level 1 and Level 2.	
	Default User Minimum access (Operator): No login.	
	Level 1 User Medium access (Operator, Maintenance): The user must use their Login to get access to the screen. The user can: • Change the profiles • Change the machine settings	
	Level 2 User Full access (Maintenance, Engineer): The user must use their Login to get access to the screen. The user can: • Complete the maintenance • Clear alarm history • Delete the profiles	
	Default Passwords Make sure that you change the passwords after you complete the start-up. The default passwords for Level 1 and Level 2 access are:	Level 1: 9999 Level 2: 1234
	“Qualified Personnel Only” These menus are for the system setup. Use the current time on the touch screen (hours and minutes – 1:45 PM = 1345) as the password for this menu. The “Machine Setup” menu shows on the display.	

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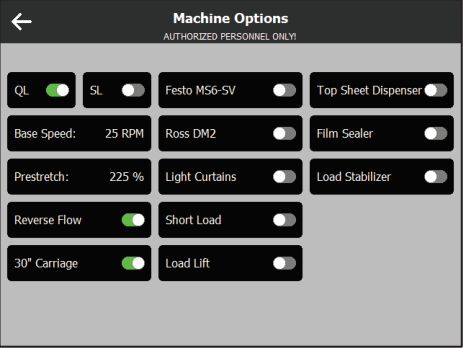
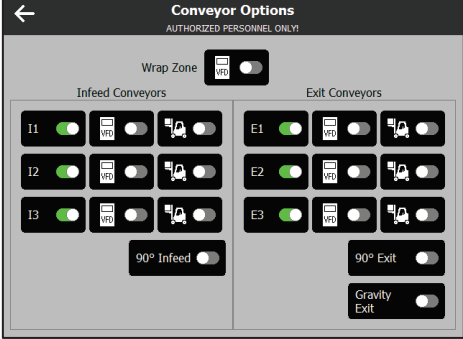
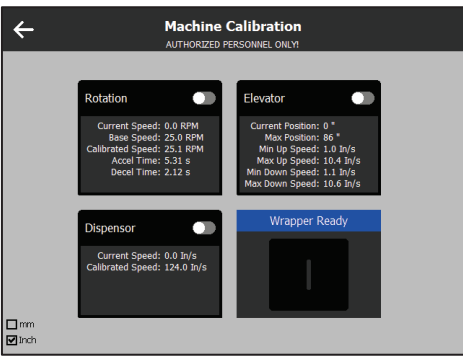
7.5.2 “Machine Setup Menu”

	“Runout Mode” This sets the machine in the “Runout” mode. Use this menu to setup, runout, troubleshoot, calibrate the machine.	
	“Runout Repeat” This selection continuously repeats the wrap cycle for the load in the wrap zone.	
	“Run Conveyors” This selection lets the conveyors operate without a load.	
	“Disable Film Break” This function lets the machine wrap a load without the film (dry cycle).	
	“Run MPS” This function lets the MPS (Film Delivery System) operate without film.	
	“Disable Height Sensor” This function disengages the load height sensor. You must set a height for the MPS travel.	
	“Wrap Height” Set the MPS travel height.	

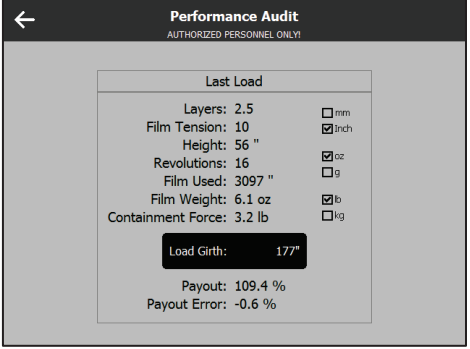
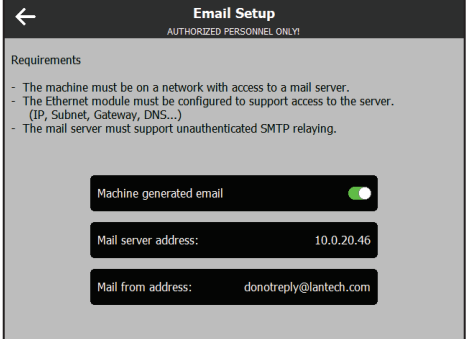
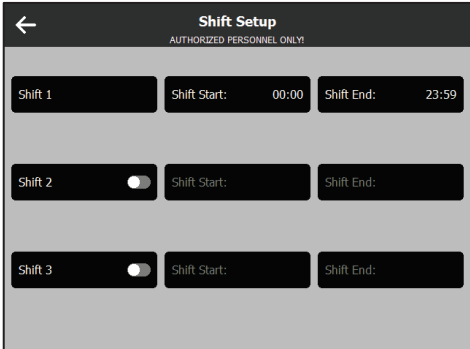
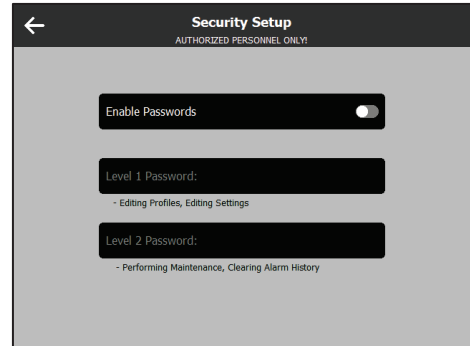
	CAUTION Personnel must be at the machine when it operates with film in the “Runout Repeat” mode. Too many layers of film on a load can cause damage to the load.
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	“Wrapper Options” This menu gives access to the Machine Options menu	
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	“Machine Options” This menu engages, disengages the options for the machine. You can select the options that apply to the machine.	
	“Conveyor Options” This menu engages, disengages the configurable options for the conveyor system. You can select the options that apply to the conveyor system.	
	“Machine Calibration” Use this menu to calibrate the speed of these motors: “Rotation” Wrap Arm “Elevator” (FDS Lift) “Dispenser” (FDS)	

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	“Performance Audit” This menu shows the wrap data for the last load.	
	“Email Setup Menu” Use this menu to setup the “Machine Generated Email”.	
	“Shift Setup Menu” Use this menu to setup the shifts and shift times.	
	“Security Setup Menu” Use this menu to: • Lock, unlock the security levels. • Set the passwords for the security levels.	

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7.6 Encoders

Encoders

The encoders, with high speed counter modules, send data to the PLC.

The encoders are for:

- FDS position and movement
- RS2 Pre-stretch Roller
- S1 Idler Roller on the FDS

FDS Travel

This encoder is below the belt roller in the mast.

- It senses the distance of the FDS from the down travel limit. The position of the FDS sets the deceleration point when the FDS moves down.
- The encoder senses the movement of the FDS. A fault occurs if the drive engages for 2.5 seconds and the encoder count does not change.
- The encoder calculates the minimum and maximum travel speeds during the “Calibrate” function.
- The encoder gives the data for the overlap and overwrap settings

FDS – RS2

This encoder is on the top of the RS2 (pre-stretch) roller. It has 2 functions:

FDS RS2 Count:

- It tracks the quantity of film applied to each load and the quantity on each film roll.
- It senses if the RS2 roller moves with the film. A fault occurs if the drive engages for 2.5 seconds and the encoder count does not change.

FDS RS2 Rate:

The machine uses the data to calculate the roller rpm. A fault occurs if the speed error is too high.

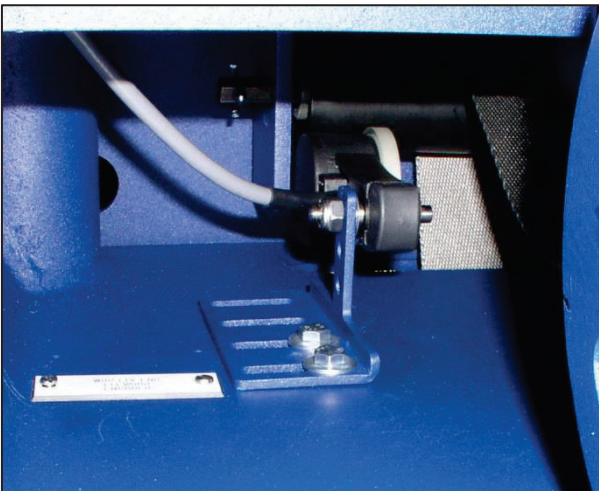
FDS – S1

This encoder is on the top of the S1 idler roller.

- It senses a film break, film roll empty condition.
- It senses the film payout during the wrap cycle.

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7.6.1 FDS Belt Encoder

Adjust the FDS Belt Encoder	
The “spring loaded” encoder stays against the idler roller on the FDS lift belt. Adjust the bracket to make sure that the encoder roller stays against the idler roller.	
1. Remove the rubber cap on the end opposite of the wheel.	
2. Put the 3/32” hex key into the set screw on the spring collar.	
3. Use the hex key for leverage. Turn the collar around the pivot shaft to increase the spring force.	
4. Hold the pressure and tighten the setscrew. (15-18 in-lb recommended). Note: The standard setting for the spring is in the “mid-range” (approximately 2 lb). Make sure that you can lift the wheel 1/8” to 1/4” off of the roller surface.	
5. Install the rubber cap.	

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7.7 Factory Settings and Adjustments

Use these settings as a base line when you make the adjustments. Record the changes.

7.7.1 FDS Up, Down Travel

Adjust the Sensor for the FDS Up, Down Travel

There are 2 proximity sensors to control the up/down travel of the FDS.

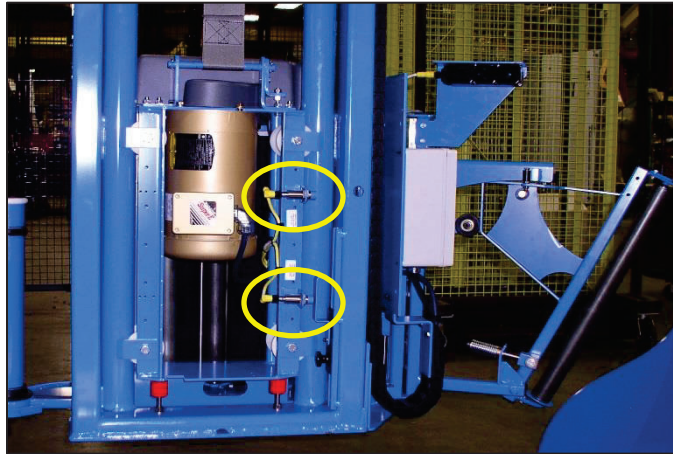
The adjustable actuators engage the sensors.

To Adjust the Sensors:

1. Loosen the nuts on the sensor.
2. Move the sensor until it sees the actuator.
3. Tighten the nuts.

To Adjust the Up, Down Travel limit positions:

1. Loosen the adjustment knob on the actuator.
2. Move the actuator up, down to the correct height.
3. Tighten the knob.
4. Examine the “tilting roller” and make sure that it is set 13 mm (½”) above the conveyor guard.



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7.7.2 Belt Slack Switch

Adjust the Limit Switch for the Belt Slack

The belt slack switch senses a belt fault.

The switch is on the bracket for the FDS Lift Drive.

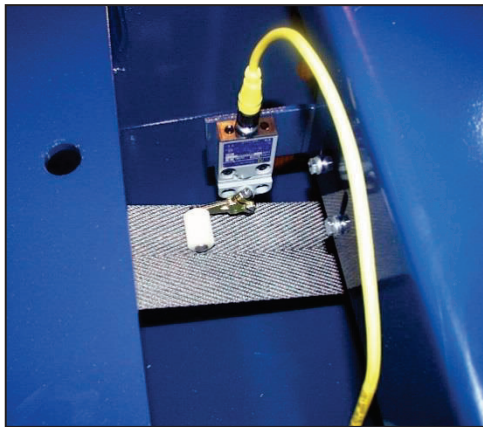
Before you adjust the switch, remove the tension from the belt:

1. Move the FDS Down proximity sensor to the lowest point.
2. Move the FDS down to the Mechanical Limit.

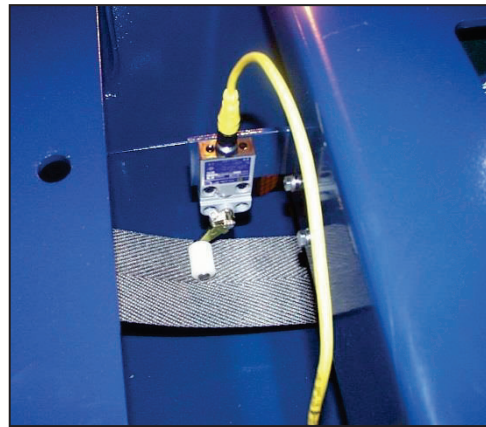
To adjust the switch:

1. Use a 10 mm wrench to loosen the (2) M6 bolts on the bracket.
2. Use a 5/32 Allen wrench to loosen the switch lever arm.
3. Turn to the correct position.
4. Adjust the switch to approximately 45° to the floor when the switch is disengaged.
5. Tighten the bolts.

Actuated – Tight Belt



Not Actuated – Slack Belt

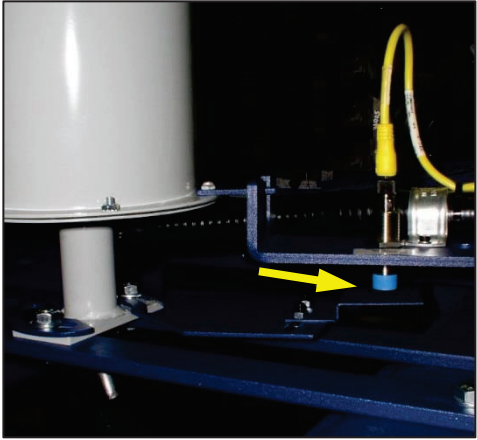


WARNING

Disconnect the power to the machine before you change, adjust, repair a component.

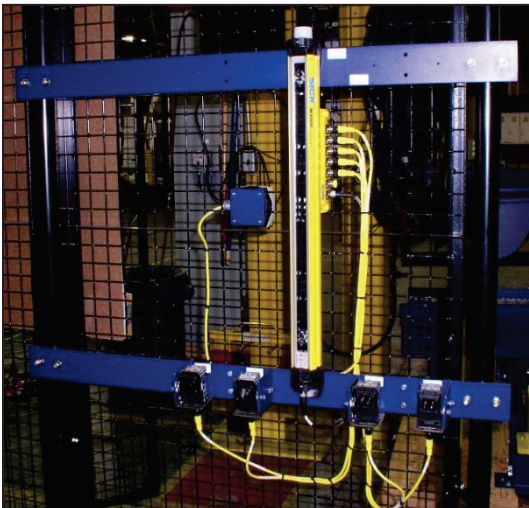
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7.7.3 Wrap Arm Home Proximity Sensor

Home Proximity Sensor for the Wrap Arm	
The wrap arm uses a proximity sensor to sense the home position (start and stop points).	
The actuator adjusts the position of the wrap arm home position.	
The sensor and the actuator are in the top frame at the ring bearing.	
Before you adjust the sensor, make sure that the actuator is below the sensor.	
1. Loosen the nuts on the sensor.	
2. Adjust the sensor until it senses the actuator, approximately 5 mm (3/8").	
3. Tighten the nuts.	
When you adjust the home position for the wrap arm, use the first home position as a reference point.	
The actuator has 2 brackets.	
Adjust the small bracket:	
1. Make a note of the position of the proximity sensor on the actuator before you move it.	
2. Loosen the 2 bolts on the home proximity sensor.	
3. Adjust it to see the actuator.	
4. Tighten the bolts.	
Adjust the large bracket only if you cannot adjust the small bracket.	
1. Loosen the 2 bolts on the bracket – below the slip ring.	
2. Adjust to increase the range for the small bracket.	
3. Tighten the bolts.	
After you adjust the home position, move the wrap arm to the new position.	
• Make sure that the wrap arm is not in a position above the conveyor. • Make sure that it is not in the path of the cutter arm.	

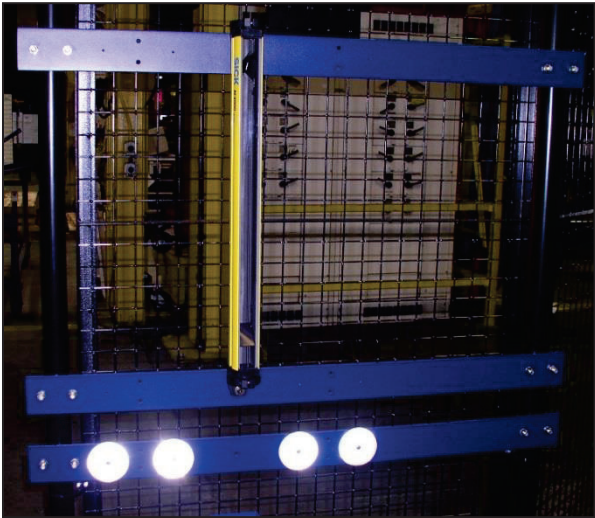
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7.7.4 Light Curtain Adjustment

Light Curtain Adjustment		
The Light Curtain emitters and receivers are level and parallel.		
The lowest beam on the Light Curtain is less than 305 mm (12”) above the top of the conveyor.		
Adjust the position and sensitivity of the “muting” photoelectric sensors to prevent incorrect signals/alarms.		
To Adjust:		
Remove the loads from the conveyors at the light curtains		
Emitter Height Adjustment		
1. Measure the distance from the lowest light curtain beam to the top of the conveyor. Adjust it if the distance is more than 305 mm (12”).		
2. Loosen the (8) nuts on the top and bottom brackets of the emitter unit.		
3. Move the assembly to make the lowest beam less than 305 mm (12”) above the top of the conveyor.		
4. Put a level on the bottom bracket. Adjust and tighten the bolts.		
5. Put a level on the top bracket. Adjust and tighten the bolts.		
Adjust the height of the Reflector Bracket		
Measure the height of the brackets.		
Use the same reference point on the conveyor.		
- The reflector bracket height is 76 mm (3”) below the height of the light curtain bottom bracket. - The reflections from the load can cause incorrect signals.		
The height difference lets you adjust the sensors at an angle to prevent incorrect signals.		
To Adjust:		
1. Loosen the 4 nuts on the bracket.		
2. Move the bracket to the correct height. 76 mm (3”) below the height of the light curtain bottom bracket.		
3. Use a level and adjust the bracket.		
4. Tighten the bolts.		

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Adjust the Height of the Receiver

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Measure the height of the bottom brackets on each side of the machine. |  |
| <ol style="list-style-type: none"> 2. If the height is not equal, <ol style="list-style-type: none"> a. Loosen the 8 nuts on the top and bottom brackets. b. Move the assembly until the brackets are equal. c. Use a level and adjust. d. Tighten the nuts. | |
| <ol style="list-style-type: none"> <ol style="list-style-type: none"> e. Level the Light Curtain | |
| <ol style="list-style-type: none"> <ol style="list-style-type: none"> f. Put a level on the bottom receiver bracket. | |
| <ol style="list-style-type: none"> <ol style="list-style-type: none"> g. Adjust the unit and tighten the bolts. | |
| <ol style="list-style-type: none"> <ol style="list-style-type: none"> h. Put a level on the top receiver bracket. | |
| <ol style="list-style-type: none"> <ol style="list-style-type: none"> i. Adjust the unit and tighten the bolts. | |
| <ol style="list-style-type: none"> 3. Adjust the Emitter and Receiver until they are parallel. | |
| <ol style="list-style-type: none"> 4. Use the 4 mm Allen wrench to loosen the top and bottom screws that hold the emitter in position. | |

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Align the emitter and receiver units.

1. Loosen the top and bottom screws that hold the receiver in position.
2. Turn the emitter to the parallel position. Make sure that it is parallel to the receiver and to the side of the conveyor.
3. Tighten the screws.
4. Do steps 1 – 3 for the receiver.
Align the “muting” sensors with the reflectors.
Make sure that the beam of each sensor is in the middle of the applicable reflector.

To Adjust:

1. Loosen the bolts on the sensor bracket and adjust the angle of the beam.
2. Tighten the bolts.
3. Loosen the nut on the sensor to align the beam horizontally.
4. Tighten the nut.
5. Make sure that all sensors align with the reflectors.

To Adjust the Sensitivity:

1. Open the cover on the sensor.
2. Turn the sensitivity counterclockwise.
3. Slowly turn the sensitivity clockwise until it sees the reflector.
4. Continue to turn the sensitivity clockwise for 1/4 rotation.
5. Close the cover.

6. Adjust each photoelectric sensor.
7. Complete a test of the light curtains.
8. Wrap multiple loads in the Auto Mode.
Make sure that the light curtains operate correctly.



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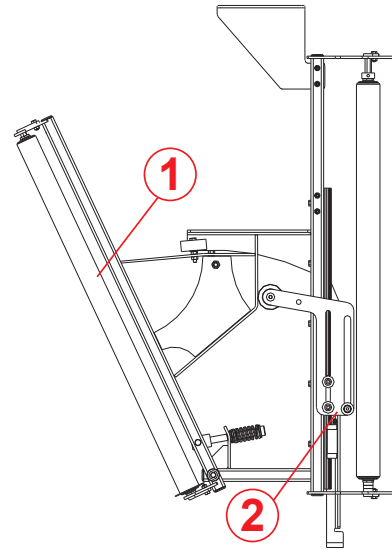
7.8 Pallet Grip® Set up and Adjustments

The Tilting Roller moves the cable of film down on the pallet.

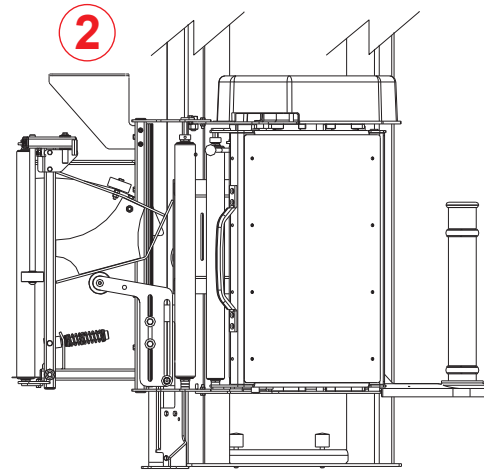
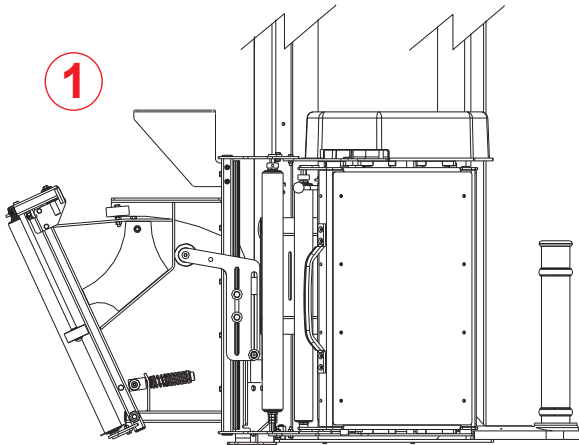
Adjust the actuator to increase, decrease the angle of the roller when it is engaged.

The Groove Roller rolls the film into a cable. It sets the quantity of film that makes the cable.

Adjust the roller to increase, decrease the quantity of film that makes the cable.



- | | |
|---|----------------|
| 1 | Tilting Roller |
| 2 | Groove Roller |



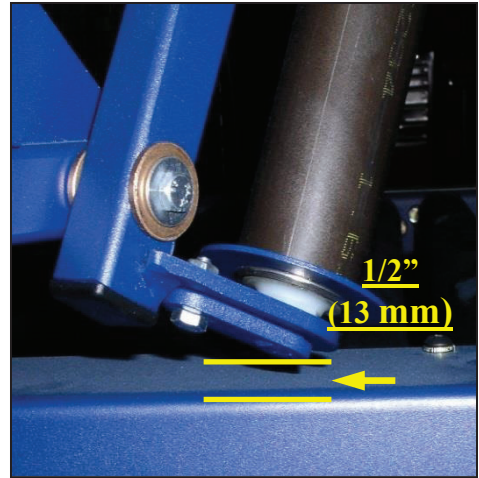
- | | |
|---|--------------------------|
| 1 | Pallet Grip® Activated |
| 2 | Pallet Grip® Deactivated |

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7.8.1 FDS Height Adjustment

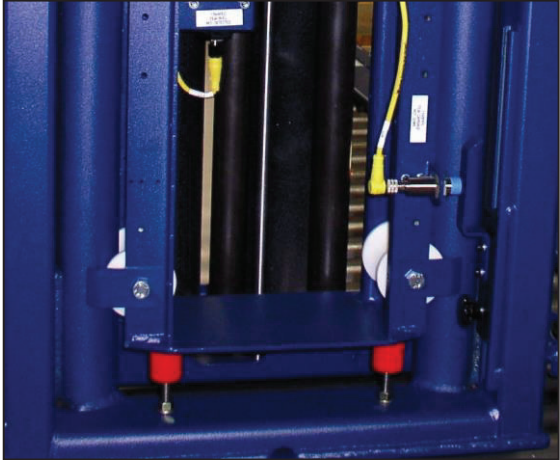
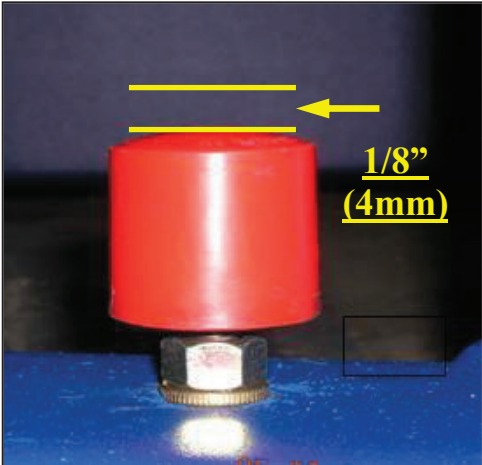
Adjust the Height of the FDS

1. Adjust the actuator for the FDS “Down Travel”
2. Make sure that the bottom of the tilting roller is approximately 13 mm (1/2”) above the highest point on the conveyor.



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7.8.2 Mechanical Limit Adjustment

Adjust the Mechanical Limit	
The Mechanical Limits control the travel of the FDS.	
They are at the bottom of the wrap arm below the FDS. The stud threads into the wrap arm and uses a jam nut to lock the stud in position.	
To adjust the actuator:	
1. Make sure that the FDS extends below the bottom of the wrap arm.	
2. Use a 9/16" wrench to loosen the jam nut and adjust.	
3. Set the height to make sure that the FDS does not move too low.	
4. Move the FDS to the lowest point. Approximately 13 mm (1/2") above the highest point on the conveyor.	
5. Measure 4 mm (1/8") between the FDS bottom plate and the top of the bumper stop.	
6. Move the FDS to the mechanical limits.	
7. Make sure that there is a clearance of 10 mm (3/8") between: • The FDS, and • The highest point on the wrap zone conveyor.	

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7.8.3 Groove Roller Height

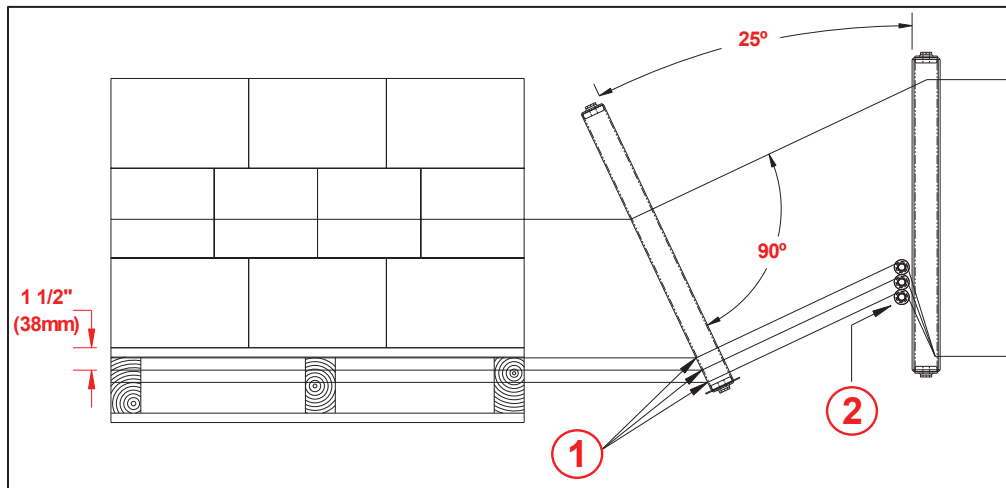
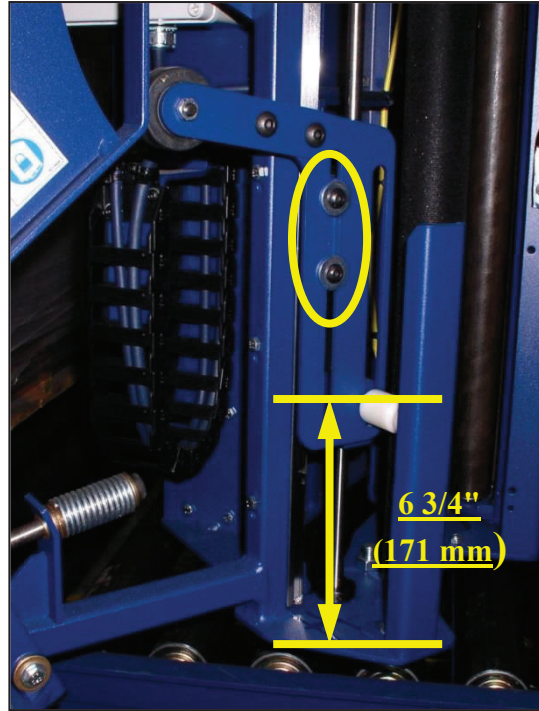
Adjust the Height of the Groove Roller

The Groove Roller rolls the film into a cable.
It sets the quantity of film that makes the cable.

1. Make sure that the FDS is in the down position (Pallet Grip® activated).
2. Measure 171 mm (6 3/4") from the FDS bottom plate to the top of the groove in the groove roller.

This setting puts the film cable on the pallet at 38 mm (1 1/2") below the top of the pallet.
3. Loosen the 2 bolts on the roller.
4. Adjust the height of the roller up, down to move the “payoff point” of the film on the tilting roller.

This raises, lowers the cable on the pallet.



1 – Film Payoff Points

2 – Roller Adjustment

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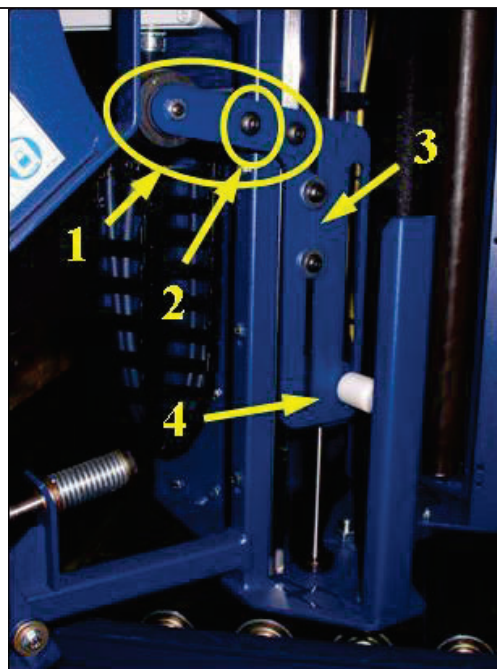
7.8.4 Disengage the Pallet Grip®

Disengage Pallet Grip

Remove the groove roller and disengage the Pallet Grip

The tilting roller continues to engage to wrap the bottom of the load.

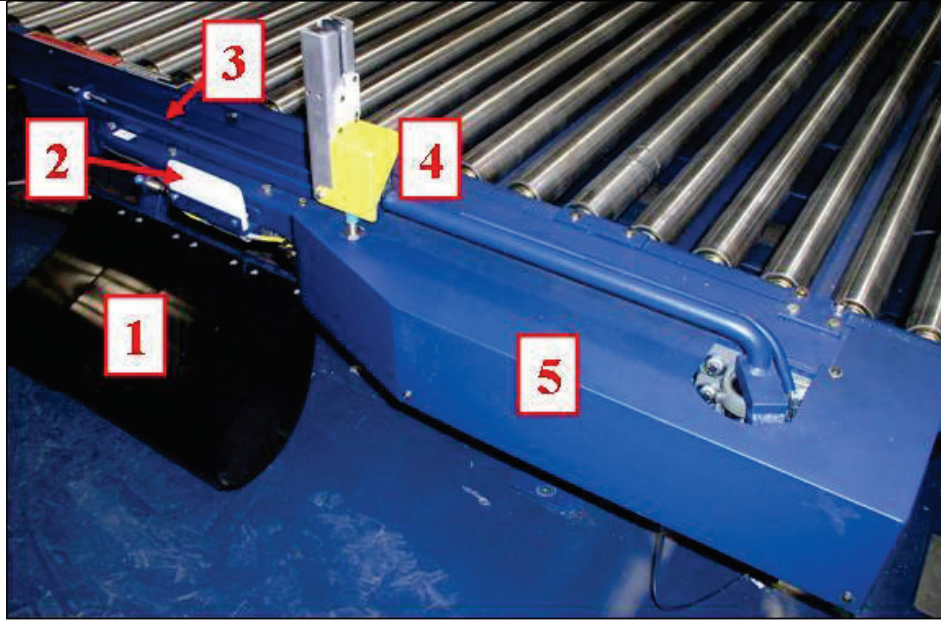
1. Remove the “Activation Wheel” bracket and remove the Wheel.
2. Install the “Activation Wheel” in the rear mount hole.
3. Adjust the “Activation Plate” to the lowest position.
4. Remove the Groove Roller from the Slide Bearing Plate.
5. Attach the Groove Roller in the Slide Bearing on the Opposite Side of the Plate.



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7.9 Automation Unit Adjustments

Adjust the Components on the Automation Unit



1	Wipe Down Loops
2	Film Plow
3	Cutter Head
4	Film Clamp Head and Arm
5	Automation Unit Cover – Pneumatic Valve, Extend/Retract Air Cylinder, Cutter Head Up, Down Proximity Sensors

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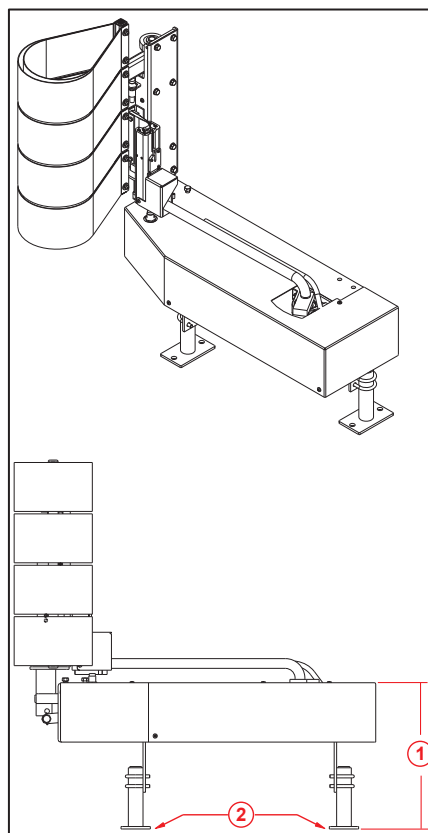
7.9.1 Level the Automation Unit (Freestanding)

Level the Freestanding Automation Unit

The freestanding Automation Unit must be level to operate correctly.

There are 2 positions for the anchors on each leg.

1. Loosen the anchors and install the shims at the anchor positions.
2. Make sure that the top plate of the automation unit is parallel with the top of the conveyor rollers.
3. Use a level on the top plate.
4. Tighten the anchors.



1 – Adjustment of the Conveyor to the Pass Height

2 – Shims

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7.9.2 Raise and Lower Proximity Sensors

Adjust the Proximity Sensors

The Automation Unit uses 2 proximity sensors to sense the position of the Film Cutter.

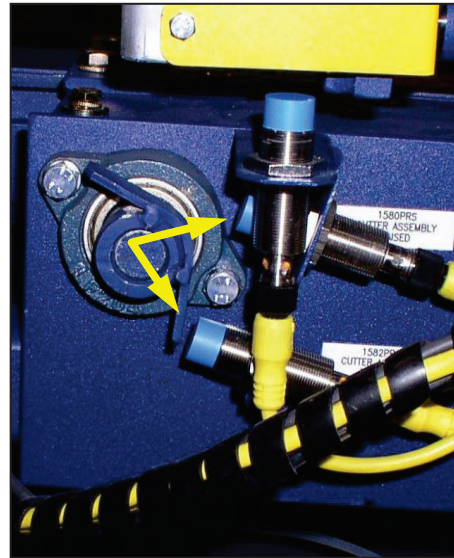
The sensors are below the cover of the Automation Unit.

Adjust the proximity sensors to give the Film Cutter full movement.

- In the “Lowered” position:
Make sure that the Film Cutter is clear of the Wrap Arm when the sensor sees the flag.
- In the “Raised” position:
Make sure that the film clamps and cuts correctly.

To Adjust:

1. Loosen the nuts on the sensor.
2. Adjust the sensor to see the wrap arm actuator.
The standard range is 10 mm (3/8”).



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7.9.3 Flow Control for the Cut and Wipe Assembly

The Cut and Wipe Assembly uses flow controls on the pneumatic valve to control the movement of the arm.

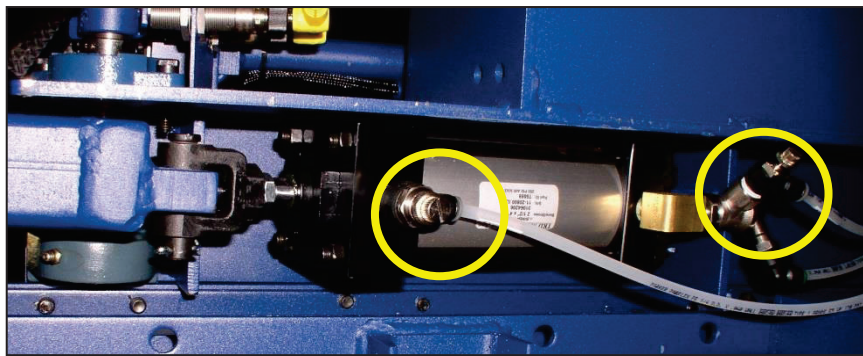
The valve is below the Automation Unit cover.

Make sure that the arm moves smoothly.

- If the film cutter raises too slowly, it extends the wrap cycle time.
- If the film cutter lowers too quickly, it can cause damage to the film cutter.

Adjust the flow controls on the valve assembly to raise, lower the film cutter.

The “retract” time shows on the “Manual Controls 2” Menu.



7.9.4 Flow Control for the Wipe Down

The Wipe Down Assembly uses flow controls on the pneumatic valve to control the speed.

The valve assembly is below the Automation Unit cover.

It controls the “Extend” and “Retract” movements.

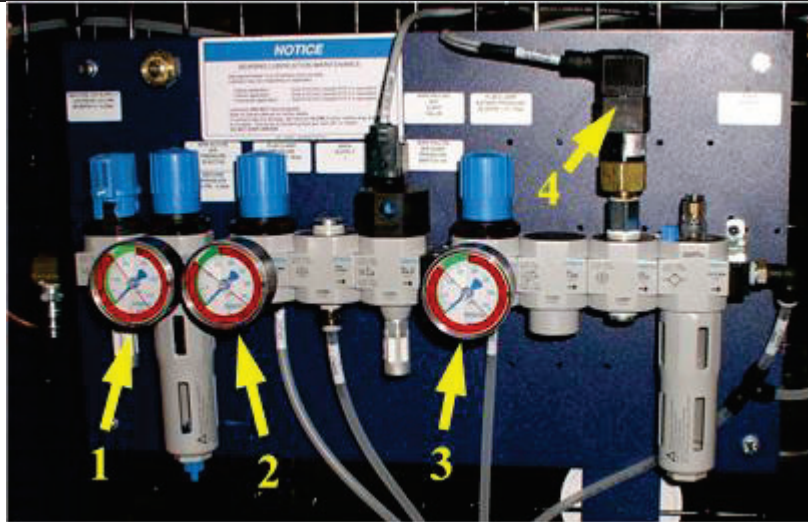
- Make sure that the wipe down assembly moves smoothly.
- Make sure that it touches the side of the load as the load moves from the wrap zone.

Adjust the flow controls to increase, decrease the “Extend” and “Retract” speeds of the wipe down loops.

MAINTENANCE

7.9.5 Film Clamp Pneumatic Adjustments

Adjust the Pneumatic Supply



1	Pressure Regulator for the Main Pneumatic Supply: 80 PSI (6 Bar)
2	Pressure Regulator for the Film Clamp Bladders: 10 - 15 PSI (.7 - 1 Bar)
3	Regulator for the Arm Extend on the Load Seeking Clamp®: 20 - 25 PSI (1.4 - 1.7 Bar)
4	Low Air Pressure Switch

To Adjust:

1. Adjust the main pneumatic supply regulator to the recommended setting.

2. Adjust the film clamp bladders.

This setting is important:

- If the pressure is set too high, the film does not release from the clamp smoothly.
- If the pressure is set too low, the clamp does not catch the film tail.

Note: If the pressure for the clamp bladder setting is more than 25 PSI (1.7 Bar):

- The air hoses can separate from the “Y” connector in the clamp.
This prevents the bladders from bursting if the pressure is too high.

3. Adjust the regulator on the Load Seeking Clamp®.

This setting lets the clamp extend to the load and does not damage the clamp or the load.

4. Complete a cycle to make sure that the regulators operate correctly.

MAINTENANCE

7.9.6 Film Clamp Arm

Film Clamp Arm

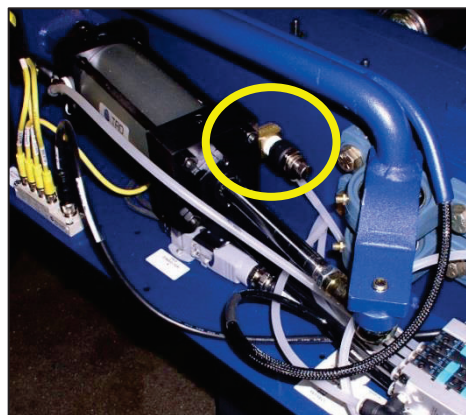
The flow control for the air cylinder is below the cover of the automation unit on the air connection.

Make sure that the arm retracts smoothly to the home position.

Before you adjust the flow control valve, make sure that the air pressure regulator is set correctly.

To Adjust:

1. Loosen the locknut on the flow control.
2. Turn the stem in, out to adjust the air flow.
3. Tighten the locknut.



MAINTENANCE

7.9.7 Proximity Sensor for the Film Clamp Retract

Sensor for the Film Clamp Retract

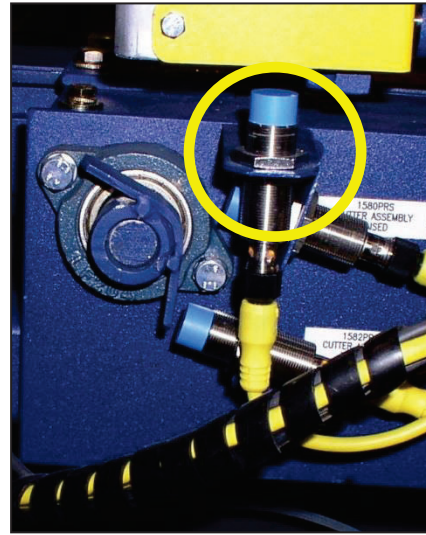
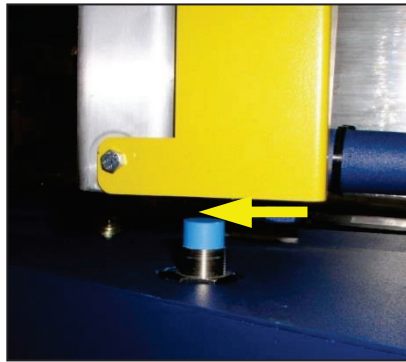
The sensor must see the clamp in the retract position to cut and wipe the film.

The proximity sensor sees the clamp guard only in the fully retracted and the vertical position.

The standard range is 10 mm (3/8").

To Adjust:

1. Remove the top cover from the automation unit.
2. Loosen the nuts on the proximity sensor.
3. Move the film clamp to the retract position.
4. Adjust the proximity sensor to approximately 10 mm (3/8") gap between the guard and the sensor.
5. Complete a test in the manual mode to make sure that the sensor operates correctly.
6. Replace the cover.
7. Make sure that the sensor target does not touch the sensor when the film cutter turns.



MAINTENANCE

7.9.8 Cutter Wire

Adjust the Cutter Wire

The cutter wire is between 2 idler rollers on the cutter head. The heat of the wire cuts the film.

Note: The cutter wire does not touch the film when it cuts.

The film buildup on the cutter wire can cause the wire to cut incorrectly. Use the “Pulse” function to clean the wire.

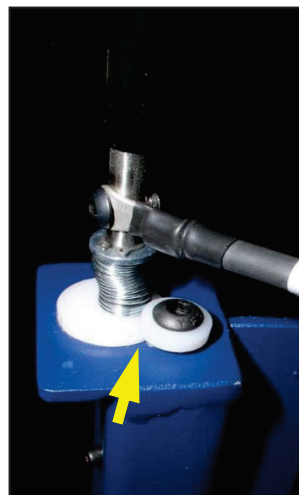
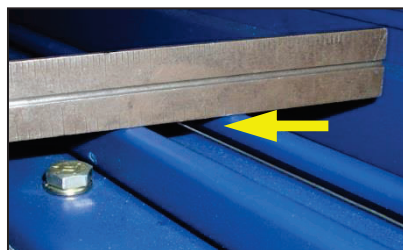
Worn roller bearings can cause the cutter wire to touch the film. Examine the bearings for wear.



WARNING

Disconnect the electrical power and release the air from the pneumatic supply before you continue.

1. Remove the top and bottom covers of the film cutter.
2. Loosen the screws on the top and bottom bushings.
3. Turn the bushings to adjust the wire.
4. Put a straight edge across the cutter head frame.
Make sure that the wire does not touch the straight edge. Move the film clamp to the retract position.
5. Tighten the screws.
Use caution because the bushings are soft. Do not over tighten.
6. Replace the covers.
7. Complete a test of the wrap cycle and make sure that the film cuts correctly.



MAINTENANCE

7.9.9 Replace the Cutter Wire

Replace the Cutter Wire

The cutter head uses a “Pulsed Cutter Wire” to cut the film at the end of the wrap cycle.

The Nichrome wire is .032 diameter-.66 ohms per foot.

- A 508 mm (20”) cutter head uses 635 mm (25”) of wire.
- A 762 mm (30”) cutter head uses 889 mm (35”) of wire.

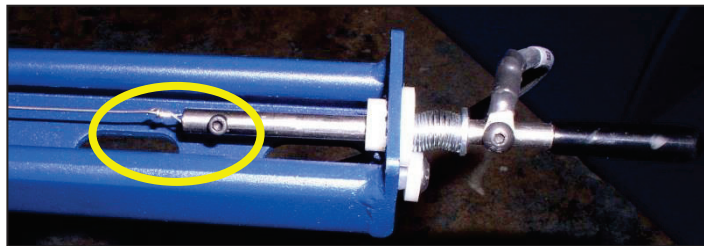
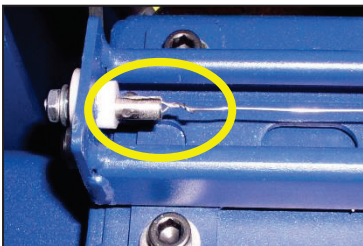


WARNING

Disconnect the electrical power and release the air from the pneumatic supply before you continue.

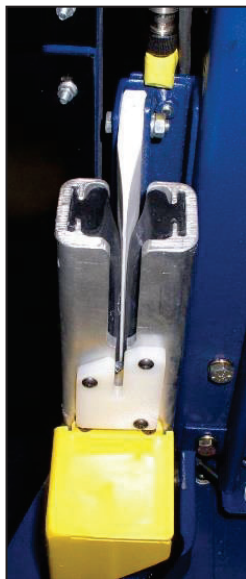
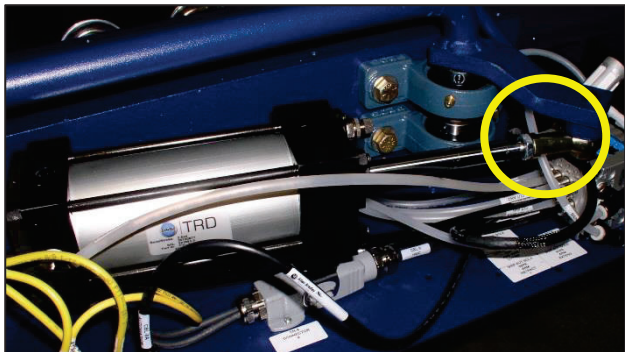
Replace the Wire:

1. Loosen the screws on the top and bottom studs.
2. Remove the wire.
3. Thread the Nichrome wire through the bottom mount, around the screw.
Twist the wire.
4. Fully compress the top mount spring.
Thread the wire through the mount and around the screw.
Bend the wire down, pull and twist it.
5. Tighten the screws to hold the wire in position and cut the excess wire.
6. Complete a test of the wrap cycle and make sure that the film cuts correctly.



MAINTENANCE

7.9.10 Load Seeking Clamp®

Load Seeking Clamp	
Sequence of Operation:	
1. The Load Seeking Clamp® uses 2 inflatable bladders to hold the film in the clamp.	
2. A film plow on the wipe arm pushes the film into the clamp with the bladders deflated.	
3. The wire cuts the film and the bladders inflate to hold the film tail in the clamp.	
4. The load moves and the wipe arm retracts.	
5. The plow releases from the clamp.	
6. The film tail stays in the clamp.	
Align the Clamp and the Film Plow	
This adjustment makes sure that the film plow moves into and exits the bladders smoothly.	
Clamp	
1. Loosen the locknut on the air cylinder shaft.	
2. Turn the shaft in or out of the rod end to align the plow in the clamp.	
3. Tighten the nut.	
4. Make sure that the plow aligns in the middle of the housing for the clamp.	

MAINTENANCE

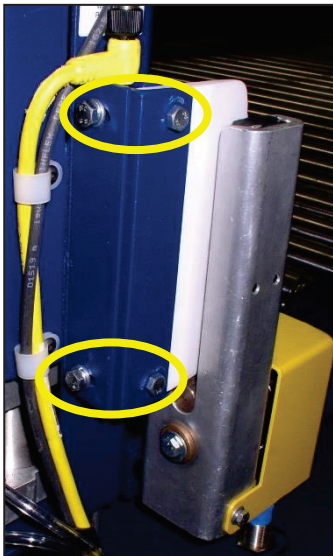
Film Plow

1. Move the film cutter to the “Raised” position and make sure that the plow is in the clamp.
2. Loosen the bolts on the film plow.
3. Align the plow with the middle of the opening between the bladders.
4. Make sure that the plow does not touch the housing of the clamp.
 - Make sure that the plow goes into the clamp smoothly.
 - Make sure that the plow does not touch the clamp when the bladders are deflated.
5. Tighten the bolts.
6. Manually retract the clamp arm and extend the film plow.
Make sure that they align.

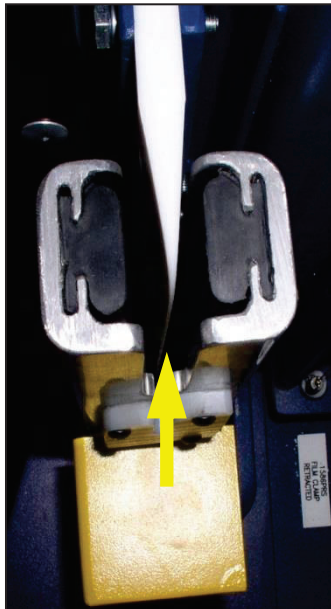
Adjust the Depth of the Film Plow

1. Move the film cutter to the “Raised” position, and make sure that the plow is in the clamp.
2. Adjust the plow if it touches the frame of the clamp.
 - a. Loosen the locknut on the air cylinder shaft.
 - b. Turn the shaft in, out of the rod end.
 - c. Set the depth of the plow into the clamp with clearance of 5 mm (3/16”).
 - d. Tighten the nut

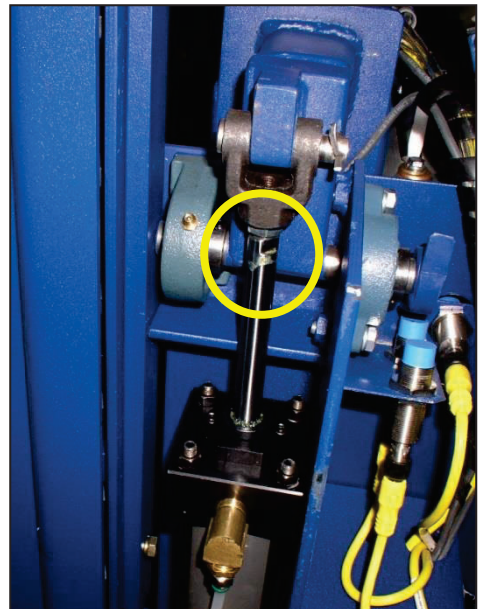
Film Plow



Film Plow in Bladder Clamp



View from Below the Automation Unit



MAINTENANCE

7.9.11 Replace the Pivot Spring

Replace the Pivot Spring

The pivot spring lets the film clamp move to the vertical position.

1. Remove the guard from the clamp.
2. Remove the bolt to release the clamp.
3. Remove the clamp from the shaft. Do not damage the air line.
If the tension on the spring is low:
 - Remove the longer side of the spring from below the bolt before you remove the spring
4. Remove the spring and install the new spring.
5. Put the roll pin in the 12:00 o'clock position.
6. Replace the clamp on the shaft.
7. Install the long leg of the spring below the bolt on the clamp.
8. Install the bolt and the washer to hold the clamp on the shaft.
9. Make sure that the clamp moves to the vertical position when pushed over.
10. Put the air hose above the set collar and replace the guard. Refer to the drawings.
11. Tighten the screws.

1 – Clamp Guard



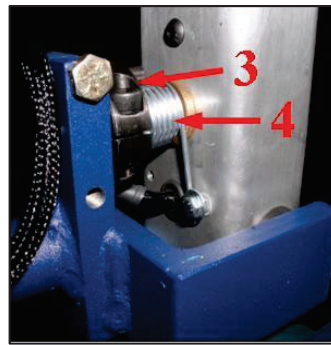
2 - Clamp Head Bolt



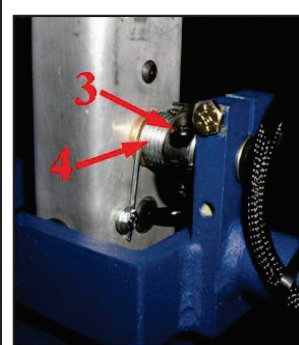
3 – Retaining Collar with Roll Pin

4 – Pivot Spring

Standard Flow



Reverse Flow



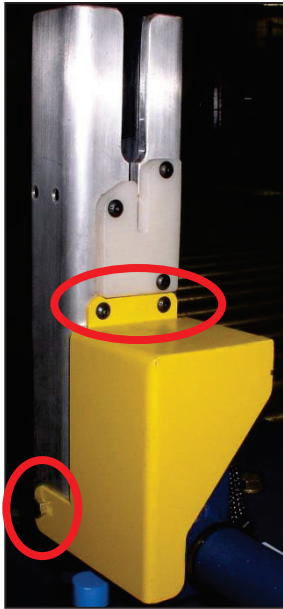
MAINTENANCE

7.9.12 Replace the Clamp

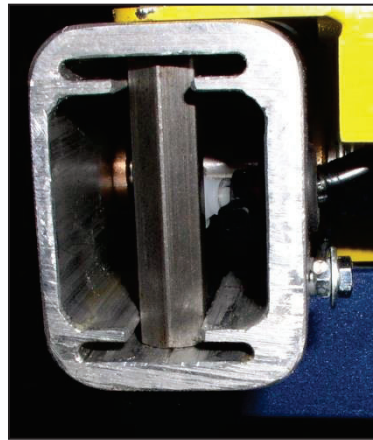
Replace the Clamp

1. Remove the guard from the clamp.
2. Loosen the bolt on the clamp arm to release the clamp from the shaft.
3. Carefully remove the air hose from the bottom of the clamp.
Keep the air hose and connectors for new clamp.
4. Connect the air hose and attach the clamp on the arm.
5. Tighten the bolt.
6. Align the film plow.

Guard



Bottom View



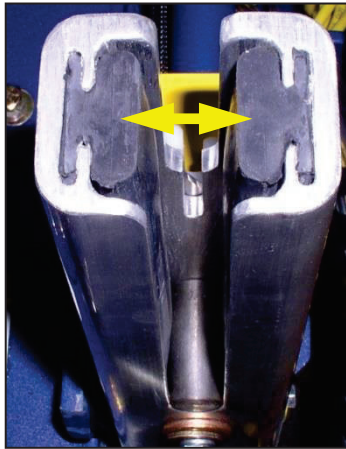
MAINTENANCE

7.9.13 Replace the Bladder

Replace the Clamp

1. Remove the guard from the clamp.
2. Loosen the bolt on the clamp arm to release the clamp from the shaft.
3. Carefully remove the air hose from the bottom of the clamp.
Keep the air hose and connectors for new clamp.
4. Loosen the setscrews on the side of the clamp housing
5. Remove the bladder from the top.
6. Put the new bladder into the housing and tighten the setscrews.
7. Make sure that the setscrews are below the surface of the housing.
8. Make sure that the bladder is flush to the top of the housing.
9. Connect the air hose.
10. Refer to the drawings and attach the clamp on the arm and tighten the bolt.

Bladders – Top View



Setscrews



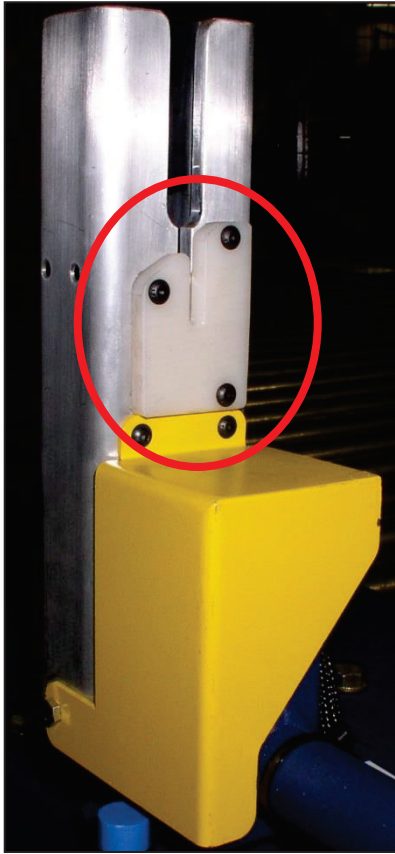
MAINTENANCE

7.9.14 Replace the Cutter Blade

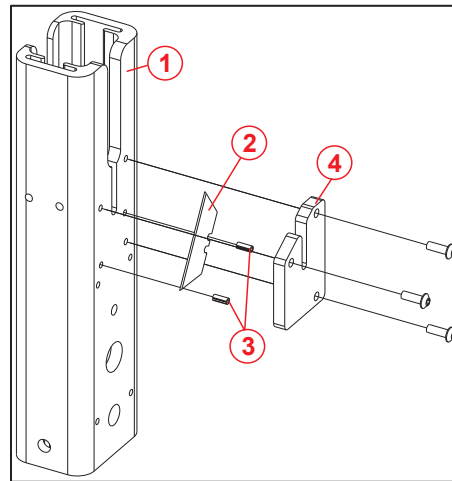
Replace the Cutter Blade

1. Remove the safety guard.
2. Remove the blade.
3. Put the new blade on the roll pins.
4. Refer to the drawings and attach the guard.

Cutter Blade



- 1 – Clamp Head
- 2 – Cutter Blade
- 3 – Roll Pins
- 4 – Blade Guard



MAINTENANCE

7.10 Safety Gate Adjustments

7.10.1 Safety Gate Proximity Sensors

Adjust the Sensors for the Safety Gate

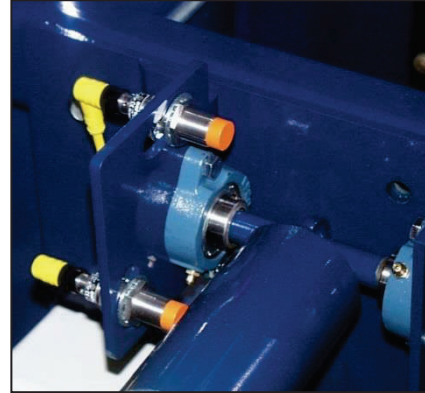
The infeed and exit gates use the proximity sensors to sense the position of the safety gates.

The sensors have the indicator lights that illuminate when the gates are in the “raised” and “lowered” positions.

Adjust the sensors to the middle of the detection range for each direction.

The standard range is 12 mm (1/2”)

1. Loosen the nuts on the sensors.
2. Adjust the sensors in each direction.



7.10.2 Flow Controls

Adjust the Flow Controls on the Safety Gates

The flow controls on the safety gates control the movement of the gates.

The flow controls are on the air cylinder at the gates.

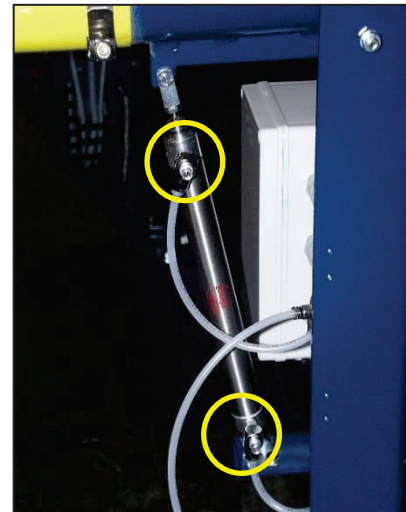
Make sure that the gates raise and lower smoothly.

To set to the factory settings:

1. Use a small screwdriver and turn the top and bottom flow controls clockwise. This closes the flow controls.
2. Turn the top flow control counterclockwise 2 full revolutions.
3. Turn the bottom flow control counterclockwise 1 1/2 revolutions.

Adjust the settings to:

- Raise, lower the gates
- Increase, decrease the speed to align with the throughput of the machine.



MAINTENANCE

7.10.3 Air Cylinder Cushion

Adjust the Air Cylinder Cushion

The air cylinder has a cushion at the top of the cylinder.

The cushion helps the cylinder to stop smoothly when the safety gates raise and lower.

To set to the factory settings:

1. Use a small screwdriver and turn the screw fully clockwise.
2. Turn the screw counterclockwise 1 1/2 turns.

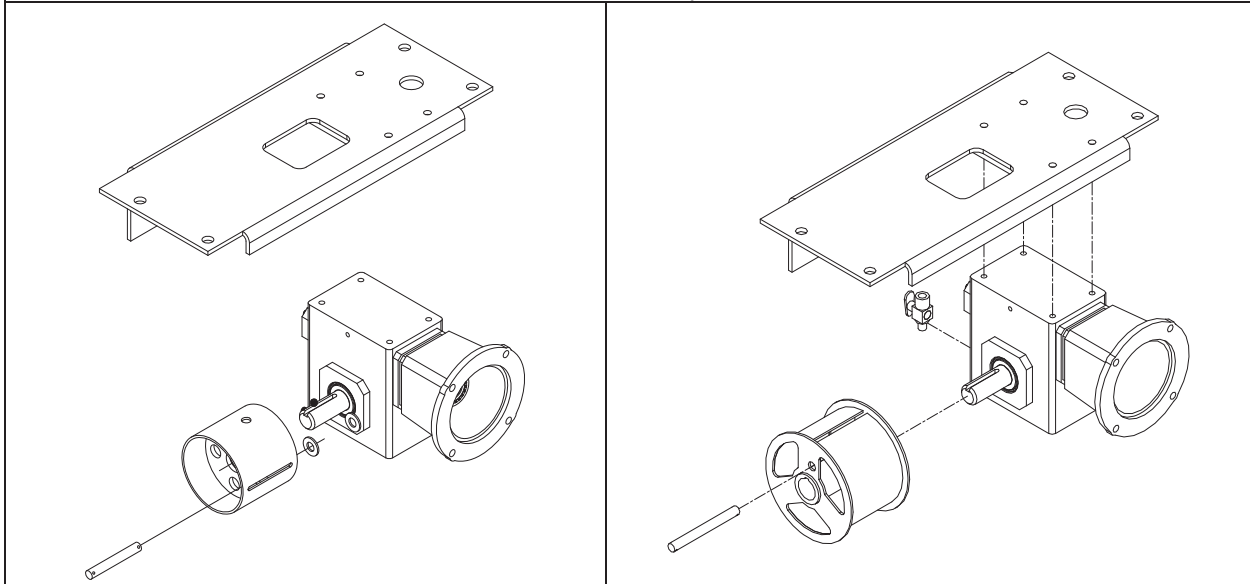
MAINTENANCE

7.11 Standard Parts Replacement

7.11.1 FDS Lift Belt

Replace the FDS Lift Belt

Refer to the illustrations for the correct lift drum assembly for the machine.



1. Move the wrap arm to get access to the FDS lift drive from the top of the wrap arm.
2. Move the down travel proximity sensor to the lowest point.
3. Move the FDS down until it stops at the mechanical limit and the lift belt is slack.
4. Obey the Lock out/Tag out procedures.



WARNING

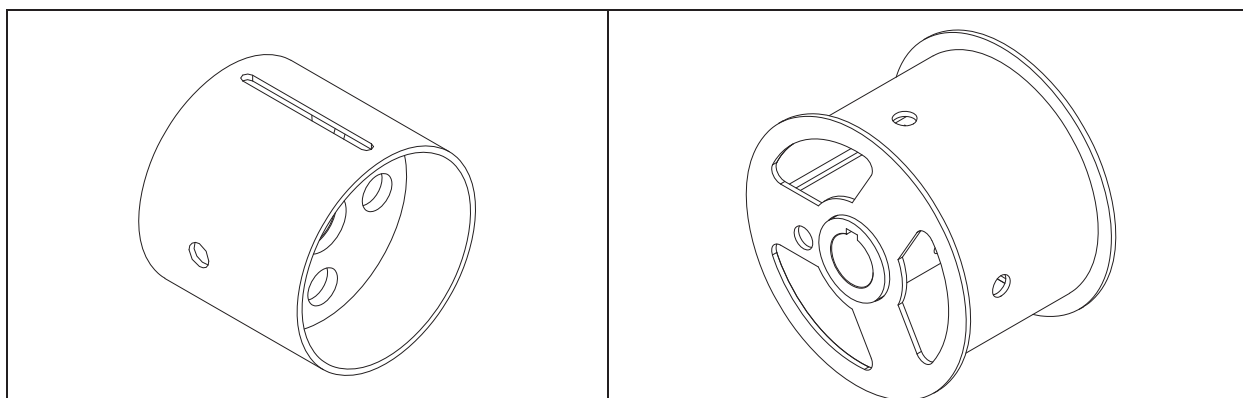
Disconnect the electrical power and release the air from the pneumatic supply before you continue.

5. Remove the shaft from the belt on the FDS.
6. Unwind the belt from the drum on the FDS lift drive in the wrap arm.

Note: Examine the position of the belt on the drum and count the number of revolutions of the belt on the drum. Use this data when you install the new belt.

7. Examine the position of the drum on the shaft of the reducer.
8. Loosen the 2 set screws that hold the drum on the shaft of the speed reducer.

MAINTENANCE



9. Remove the drum from the shaft of the reducer.
10. Remove 1 of the cotter pins from shaft and remove the belt.
11. Attach the new belt to the drum.
12. Remove the 2 set screws. Put the “thread lock” compound on the set screws and put them in the drum.
13. Apply the “anti-seize” compound to the speed reducer shaft.
14. Put the drum on the shaft of the speed reducer.
Make sure that the key is in the slot on the reducer shaft.
15. Tighten the set screws on the shaft of the reducer.
16. Wrap the belt on the drum with 1 less revolution that was on the old belt.
17. Thread the belt below the “Belt Slack” switch and above the idler roller.
18. Attach the belt to the FDS.
19. Apply the power and the air to the machine.
20. Move the FDS up and down on the wrap arm.
Make sure that the belt “tracks” correctly on the drum and the idler roller.

MAINTENANCE

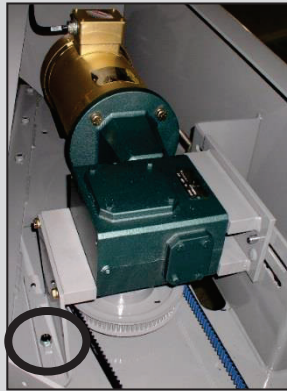
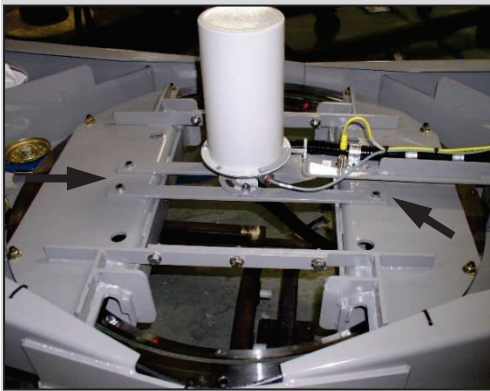
7.11.2 Drive Belt for the Wrap



WARNING

Disconnect the electrical power and release the air from the pneumatic supply before you continue.

1. In the junction box in the wrap arm, disconnect the slip ring to wrap arm electrical connector.
2. Remove the 4 bolts from the slip ring bracket on the wrap arm saddle.
3. Loosen the bolts on the wrap arm drive.
4. Loosen the tensioning nut until you can remove the belt from the sprocket.
5. Remove the belt and examine the urethane ring on the ring bearing for wear.
6. Install the new belt around the ring bearing.
7. Thread the belt between the idler pulleys and around the sprocket.
8. Align the belt on the ring bearing before you set the tension on the belt.
9. Use a tension gauge and set the tension on the belt.
10. Tighten the bolts.
11. Install the slip ring and connect the electrical connector to the junction box.
Make sure that the cable from the slip ring stays below the saddle.
12. Move the wrap arm at high speed and make sure that the belt does not slip when you start and stop the wrap arm.
13. Examine and adjust the belt after 100 cycles.



MAINTENANCE

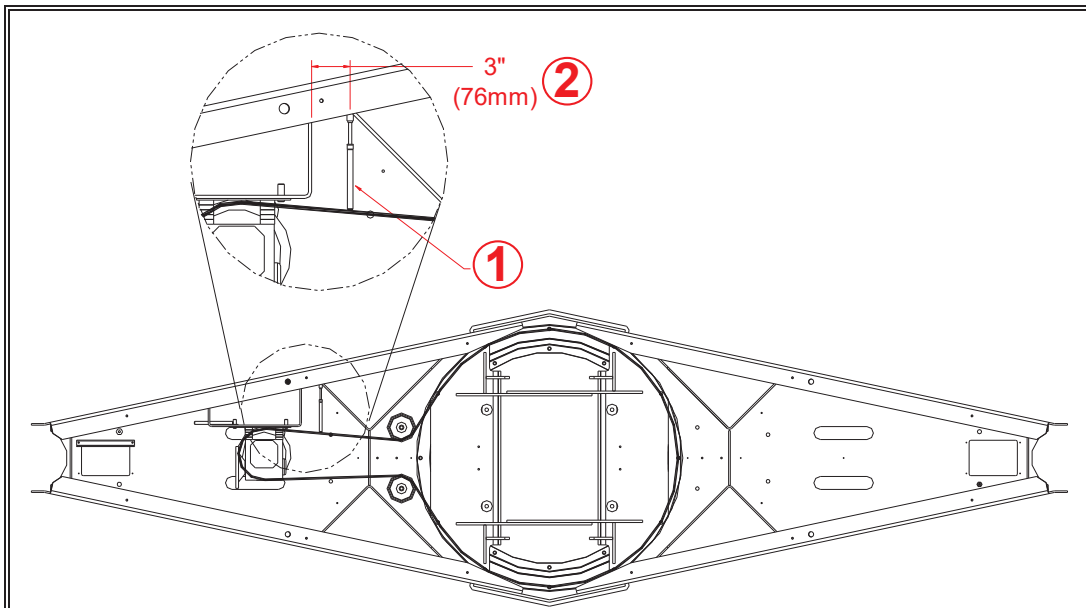


Figure 7.52

1	Tension Gauge
2	Position of the Gauge

Tension for the Wrap Arm Belt	
Deflection	Force
8 mm (5/16")	7.7 kg (17 lbs)

MAINTENANCE

7.11.3 Ring Bearing



WARNING

Disconnect the electrical power and release the air from the pneumatic supply before you continue.

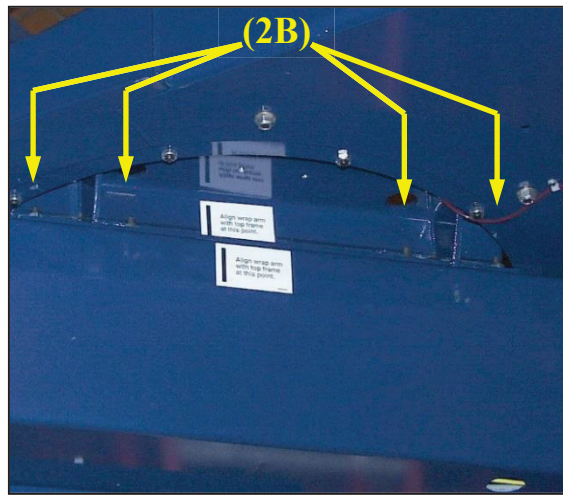
Replace the Ring Bearing

Remove the Slip Ring and the Drive Belt

1. In the junction box in the wrap arm, disconnect the slip ring to wrap arm electrical connector.
2. Remove the 4 bolts from the slip ring bracket on the wrap arm saddle.
3. Loosen the bolts on the wrap arm drive.
4. Loosen the tensioning nut until you can remove the belt from the sprocket.

Remove the Wrap Arm

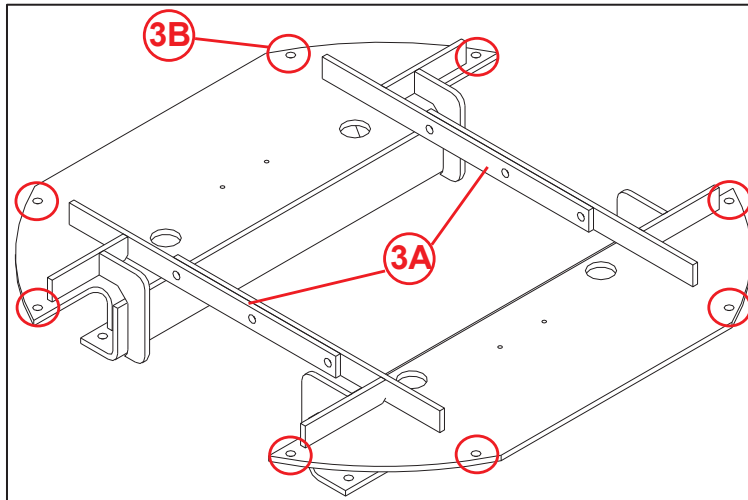
1. Use a forklift to remove the wrap arm.
2. Attach a lift strap to the wrap arm at the FDS lift drive and to the forklift.
3. Remove the 8 nuts (4 on each side) from the saddle.
4. Remove the wrap arm.



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Remove the Saddle

1. Use a 19 mm wrench to remove the 6 bolts, nuts and washers from the tie bars on the saddle.
2. Use a 3/4" wrench to remove the 8 bolts, nuts and washers that attach the saddle to the ring bearing.
3. Remove the 2 sections of the saddle.



3A – Saddle Tie Bars

3B – Holes for the Ring Bearing

Remove the Ring Bearing

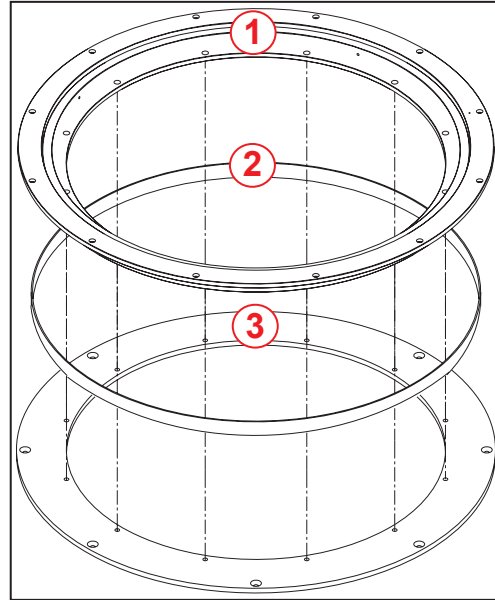
1. Disconnect the grease line and remove the grease fitting from the bearing.
2. Keep the fitting for the new bearing.
3. Remove the jam nuts on the 12 ring bearing to adaptor ring bolts.
4. Remove the 12 bolts.
5. Attach the eyebolts to the ring bearing on opposite side holes
6. Attach a strap, chain to lift the ring bearing.
Tilt the ring bearing to clear the top frame.

MAINTENANCE

Install the Ring Bearing

1. Look at the original bearing and make sure that the ring bearing has a urethane band.
2. Use the steps above in the opposite sequence to install the new ring bearing.
3. Put the bearing in position and align the grease port for the grease fitting.
4. Install the ring bearing to the adapter ring and torque the bolts to 108 N-m (80 lb-ft).
5. Use a “star” pattern to tighten the bolts.
6. When you assemble the saddle, tighten by hand, the 6 bolts on the tie bar and the 8 saddle bolts.
7. Tighten the saddle to ring bearing bolts.
8. Tighten the bolts on the tie bar.
9. Torque the bolts to 102 N-m (75 ft-lb).
10. Refer to section 5 to install the wrap arm to the saddle.

- 1 – Ring Bearing
2 – Urethane Band
3 – Adaptor Ring



7.12 Variable Frequency Drives (VFD)

Variable Frequency Drives (VFD)

The Variable Frequency Drives control the speed of the motors.

Refer to the electrical drawings for the settings for the VFDs.

Refer to the VFD manufacturer manual.



WARNING

Obey all safety procedures. You must apply the power to the machine for some electrical adjustments.