

G SERIES

Machine Manual



Serial Number: G0000000

Lantech[®]

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INTRODUCTION

1.0 Introduction

This manual tells the operator and maintenance personnel how to safely install and operate the machine. The function of the manual is to make sure that the operator and maintenance personnel have complete instructions.

1. Introduction
2. Specifications
3. Options
4. Safety
5. Installation
6. Operator Instructions
7. Maintenance
8. Troubleshooting
9. Appendix
10. Parts List and Drawings

The Specifications and Options sections contain data about special options. This is important as you install and operate the machine.

The Safety section points out the Warnings, Cautions, and Notes and makes sure that all personnel work in a safe environment.

The Installation and Operator Instructions sections tell you how to install and use the machine safely and efficiently.

The Maintenance and the Troubleshooting tell you how to make sure that the machine stays at top performance.

The Appendix section can include the CE Declaration of Conformity, Glossary and Warranty procedures.

The Parts List and Drawings sections have data on parts.

This manual helps you operate your machine safely and efficiently. The value is to increase your productivity and decrease packaging costs.

INTRODUCTION

1.1 Support

For support, use the phone and email data below:

	ASIA PACIFIC	AFRICA & EUROPE	NORTH & SOUTH AMERICA
Location	Melbourne Australia	Cuijk Netherlands	Louisville Kentucky
Phone	+61 3 9796 5275	+31 (0)485 335 611 Parts +31 (0)485 335 615 Service	502-815-9101 Parts 502-815-9104 Retrofits 502-815-9103 Service
Email	aus.support@lantech.com	Service euroservice@lantech.com	Service tsc@lantech.com
Parts		europarts@lantech.com	tsg@lantech.com
Retrofits			retrofits@lantech.com
Fax	+61 3 9703 2725	+31(0)485 330 755	502-267-8864

Revision Date: 2014-05-19

SPECIFICATIONS

2.0 Specifications

All Lantech® machines have a serial number tag in 1 of these locations:

The serial number can also be in other areas of the machine.

In the electrical enclosure



Figure 2-1

The door of the enclosure



Figure 2-2

SPECIFICATIONS

2.1 Machine Specifications

General	
Dimensions	2769 mm L x 1702 mm W x 2515 mm H (109" L x 67" W x 99" H)
Machine Weight	385 kg (850 lbs)
Shipping Weight	499 kg (1100 lbs)
Performance	
Speed	Application specific
Maximum Load Height	2286 mm (90") with 76 mm (3") Overwrap
Maximum Load Weight	1600 kg (3500 lbs)
Capacity	
Turntable Dimensions	1651 mm (65") Diameter
Turntable Rotation Speed	10 rpm (Potentiometer controlled)
Turntable Height	70 mm (2 ¾")
Turntable Bearing Support	16 Point Suspension – Double Roller Bearings
Turntable Drive	.55 kW (¾ hp) 230 VAC 3 Phase 50/60 Hz TEFC Motor 1750 RPM Motor - 45:1 Speed Reducer
Film Delivery System (FDS)	
Lift Speed	Potentiometer controlled
Film Stretch System	Roller Brake – Mechanical (Standard) Electrical (Option)
Lift Drive	.18 kW (1/4 hp) 230 VAC 3 Phase 50/60 Hz 1750 RPM Motor – 100:1 Speed Reducer
Film	All Film – includes Hand Film, Pre-Stretch Film
Standard Film Capacity	254 mm (10") Diameter 508 mm (20") Length (Standard)
Tension Controls – Mechanical Brake	Tension Release Lever – Off/On Tension Increase/Decrease – Film Tension Knob 3 – 14 kg (6 – 30 lbs)
Tension Controls – Electric Brake	Tension Increase, Decrease – Film Tension Potentiometer 3 – 14 kg (6 – 30 lbs)

SPECIFICATIONS

Electrical Data	
Power Requirements	120 Volts, 20 A (Power Cord with 20 Amp Plug) 220 Volts, 15 A (Power Cord without plug)
Controls	PLC
Enclosure	UL Listed Industrial Enclosure
Warranty	3 Years

OPTIONS

3.0 Options

This section includes the options that are not on the standard machine.

3.1 Ramp

The ramp lets the operator use a forklift or pallet jack to put the load on the turntable.

You can attach the ramp at 3 different positions.

Make sure that the space is sufficient to move the load before you put the ramp in position.

1. Use the pins on the ramp porch to attach it to the turntable.
2. Put the pins into the holes on the turntable skirt.
3. Use the anchor brackets to attach to the floor.

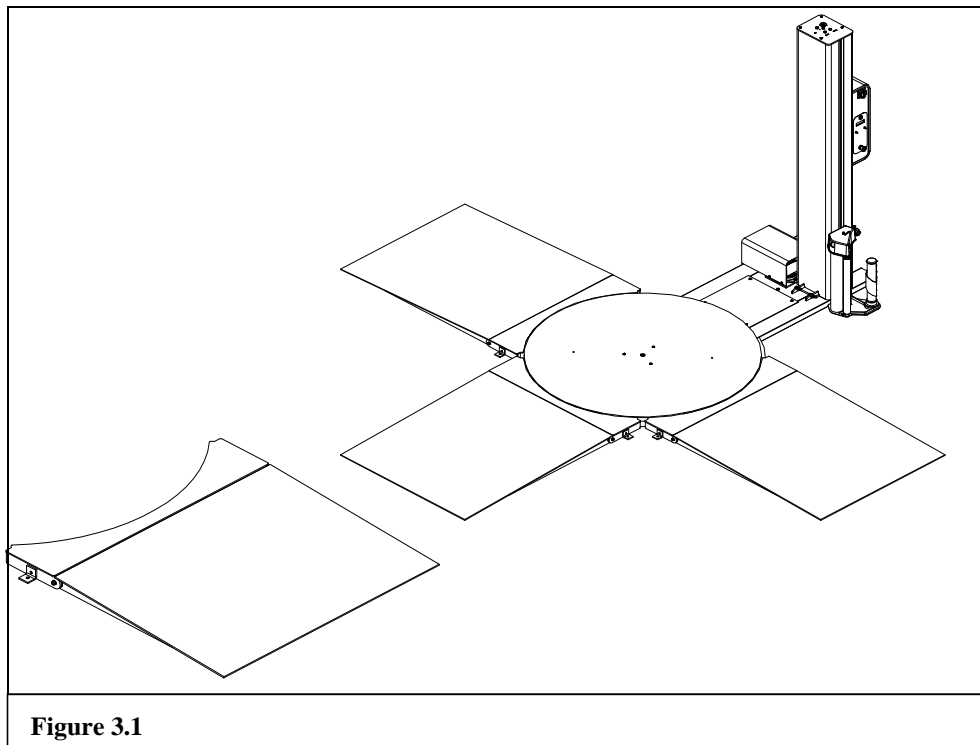


Figure 3.1

OPTIONS

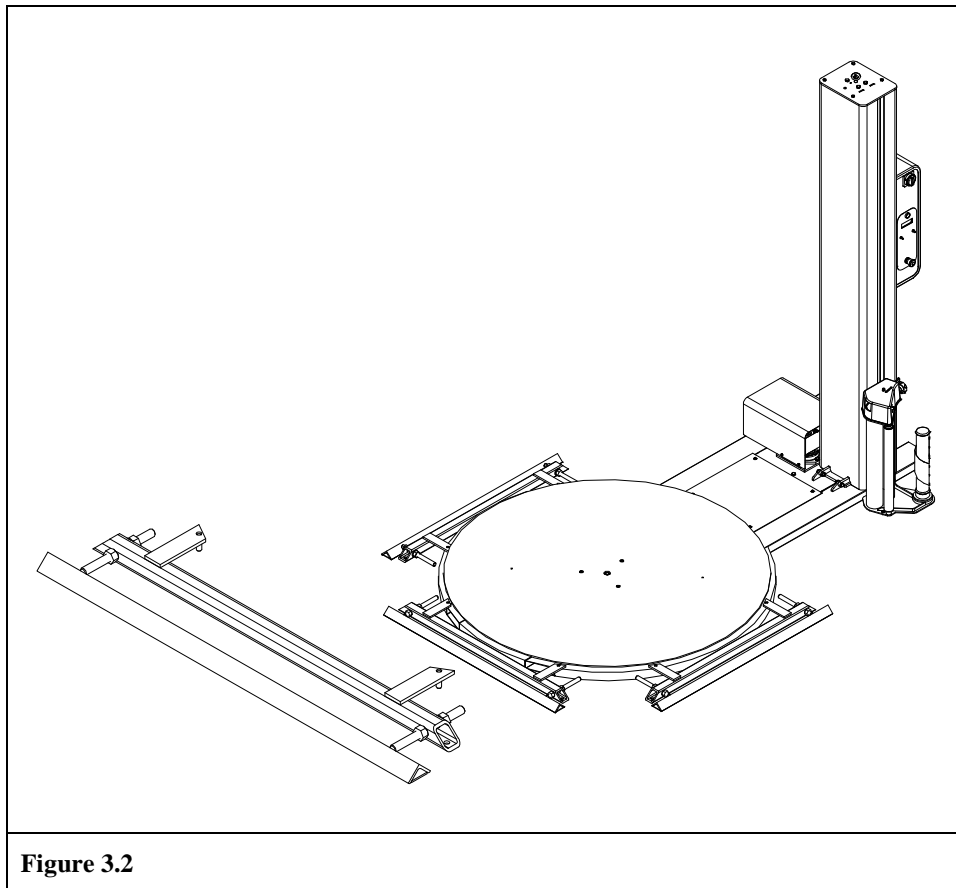
3.2 Forklift Stop

The Forklift Stop helps the operator to align the load on the turntable.

It attaches to the turntable skirt and is adjustable.

You can attach it at 3 different positions.

1. Use the pins on the forklift stop to attach it to the turntable.
2. Put the pins into the holes on the turntable skirt.
3. Use the anchor locations to attach to the floor.



OPTIONS

3.3 Pallet Grip®

This option adds Pallet Grip® to the Film Delivery System (FDS).

The Pallet Grip locks the load to the pallet.

As the FDS lowers, the pallet grip engages and makes a cable of film.

The option includes a Groove Roller:

- The roller sets the quantity of film that makes the cable, and
- It sets the height of the cable on the pallet.

The cable attaches below the top boards of the pallet to lock the load to the pallet.

Daily and Weekly Maintenance

- Remove the debris from in and around the Pallet Grip®.
- Examine the groove roller and make sure that it turns freely.
- Make sure that the film moves above the groove in the roller as the load wraps.

Adjust the Pallet Grip®

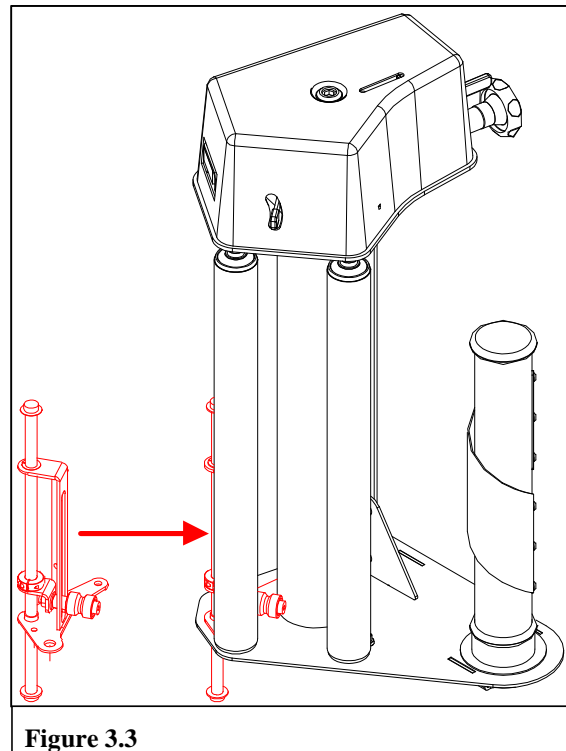
Tools:

- 9/64 Allen wrench
- Tape measure

1. Fully engage the Pallet Grip® and loosen the collar on the groove roller.
2. Adjust the roller.

The adjustment for a standard height pallet 127 mm (5''):

- 152 mm (6'') from the floor to the top of the groove in the guide roller.



OPTIONS

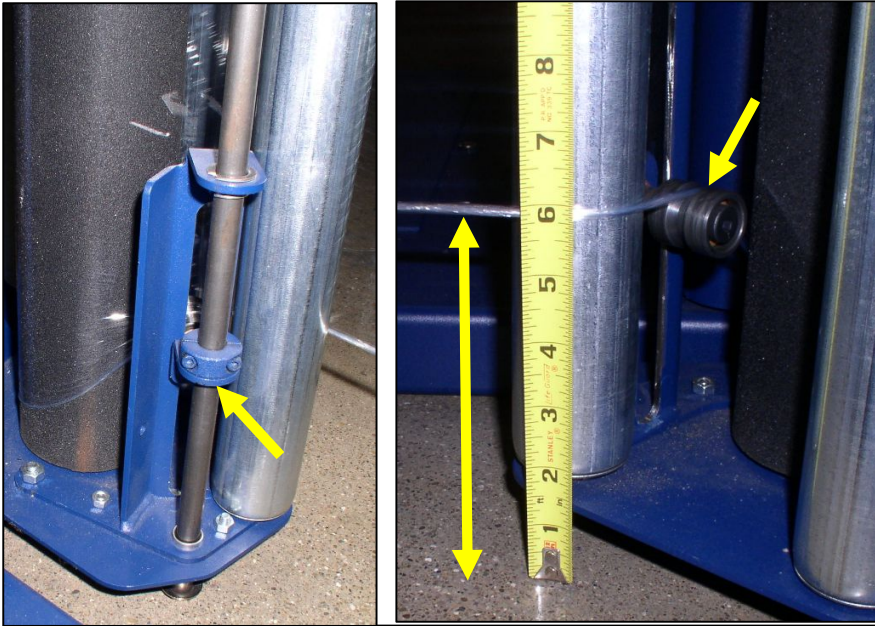


Figure 3.4



Figure 3.5

OPTIONS

3.4 G Force Plus Film Delivery System (FDS)

The option includes an electric brake, “Wrap Assist” and Auto Film Cut-off.

Electric Brake

The brake controls the tension on the film during the wrap cycle.

The tension decreases at the start of the cycle to keep the film on the load. The tension increases to the set value after the first revolution. The brake disengages at the end of the cycle.

To change the tension, adjust the potentiometer on the control panel. The tension percentage shows on the film tension value display. (Figure 3.6)

Turn the potentiometer (Figure 3.7):

- Counterclockwise for the minimum film tension – 3 kg (6 lbs).
- Clockwise for the maximum tension – 14 kg (30 lbs).

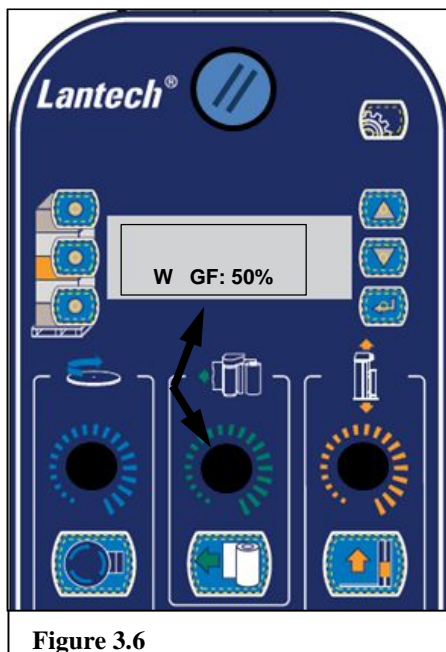


Figure 3.6

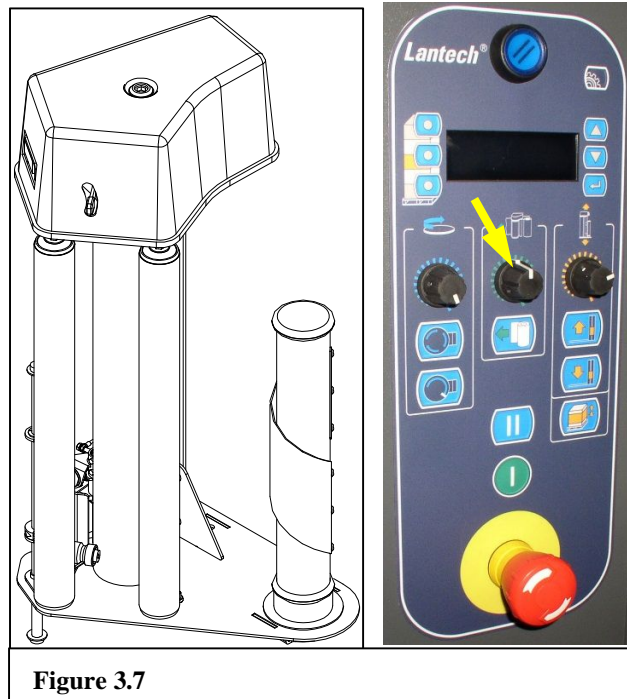


Figure 3.7

Wrap Assist

The “Wrap Assist” function decreases the turntable speed and the film tension. This makes it easy to “rope” the film and apply cornerboards, top sheets, labels, etc. When “Wrap Assist” engages, the display shows a “W”. (Figure 3.6).

OPTIONS

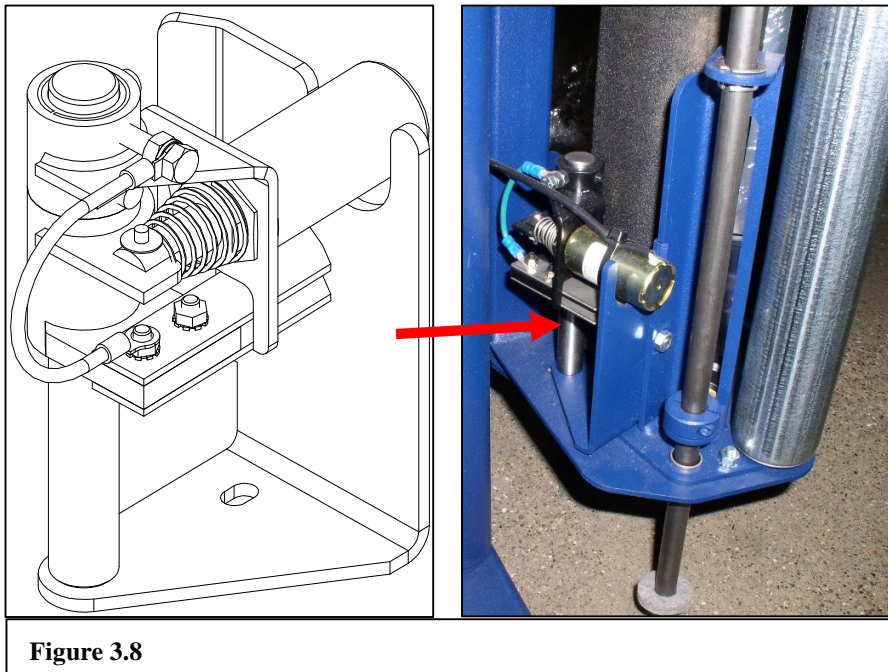
Auto Film Cut-off (AFC)

The AFC is on the bottom of the FDS. This lets the operator use films with different widths, with no adjustments. The AFC cuts the film at the end of the wrap cycle.

- A solenoid assembly on the FDS creates a hole in the film as the turntable moves to the home position.
- The pre-stretch stops and the film breaks at the end of the turntable rotation.

This keeps the operator on the forklift and decreases labor on each load by approximately 30 seconds.

Note: Auto Film Cut-off is for loads more than 91 kg (200 lbs).



SAFETY

4.0 Safety

This manual tells the operator and maintenance personnel how to safely install and operate the machine. The section includes:

- General safety
- Personnel safety
- Safety & Environmental Controls
- Warnings, Cautions and Notes

General Safety

- Read the manual to install, operate, and repair the machine safely.
- Obey all safety labels.
- Obey all warnings to prevent an injury to personnel.
- Obey all cautions to prevent damage to the machine.
- Obey all Lockout/Tagout procedures before you change, adjust, repair a part.
- Refer to the adjustment data to prevent a safety hazard.

Personnel Safety

- To prevent an injury and safety risk, do not install, operate, repair the machine while influenced by drugs, alcohol, medication.
- A part that moves can catch loose clothing, long hair, jewelry and cause injury to personnel.
- Data on Personal Protective Equipment (PPE) is in the Installation section of this manual.
- Refer to the Installation section for personnel and tools to safely install the machine.

Safety & Environmental Controls

- Make sure that you recycle all waste.
- Release all chemical waste to a certified Waste Processing Company only.
- To decommission the machine, the owner of the machine and all auxiliary equipment, must:
 - Obey applicable environmental regulations and discard electrical components safely.
 - Obey all applicable environmental, plant, and industrial safety regulations.
 - This applies to local, regional, and federal controls, and includes all OSHA and CE regulations.

SAFETY

Lockout/Tagout

Obey these procedures to prevent an injury from unexpected energizing, start-up, release of stored energy.

This applies to local, regional, and federal controls, and includes the current controls for:

- Australia – OSHA – Prevention of Unexpected Startup
- Europe – CE – Machinery Directive – Isolation of Energy Sources
- USA – OSHA – Control of Hazardous Energy

Warnings, Cautions, and Notes

- Warnings, Cautions, and Notes tell the user important safety data.
- Warnings, Cautions, and Notes follow the data to which they apply.

SAFETY














4.1 Pictograms

The pictograms tell personnel of possible dangerous areas around the machine. Obey all pictograms and safety labels.

Some of the pictograms in the list below do not apply to your machine.

	Do Not Operate without Guard in Position		No Entry
	Maximum Capacity		Do Not Step
	Do Not Reach		Fire Can Occur
	Hot Surface		Electrical Warning
	Release of Pressure		Explosion Warning
			Electrical Shock Warning
	Pull In Warning		Do Not Walk on Conveyor
			Hit is Possible From Above
	Fall Warning		

SAFETY

	Cut Warning		Film Delivery System Warning
			Crush Warning
			Do Not Reach
	Machine Can Fall		Hit is Possible From The Side
			Obeys the Safety Instructions
	Chemical Waste		Environment
	Important Note		Refer To Manual

INSTALLATION

5.0 Installation Instructions

Read the Installation section and do the steps in sequence.

Note: Illustrations are for reference only.

Note: Functions, descriptions and data can be different on your machine. Refer to Section 3 Options.

5.1 Prepare the Area

The space requirements can be different on each machine. Use your machine dimensions when you prepare for the installation.

Location:

- Make sure that the mast has a clearance of a minimum of 762 mm (30") to the nearest blockage.
- The floor must be flat – no more than 6 mm (1/4").
- Make sure that the floor can hold the total weight of:
 - The machine – 385 kg (850 lbs)
 - The maximum load weight – 1600 kg (3500 lbs)
 - Forklift, Pallet Jack
 - Other equipment in the area
 - Personnel

5.2 Personnel, Equipment and Tools

Personnel

- 1 Forklift Operator
- 1 Electrical/Mechanical Technician

Equipment

- 1 Forklift
- 1 Ladder

Tools

- Sockets and Wrenches: 13 mm, 17 mm, and 19 mm
- Ratchet and Ratchet Extension
- Diagonal Cutters
- Safety Glasses

INSTALLATION

5.3 Installation

1. Set the machine in the installation area. Do not remove from the skid.
Make sure that the space is sufficient for the machine and the forklift.



Figure 5.1

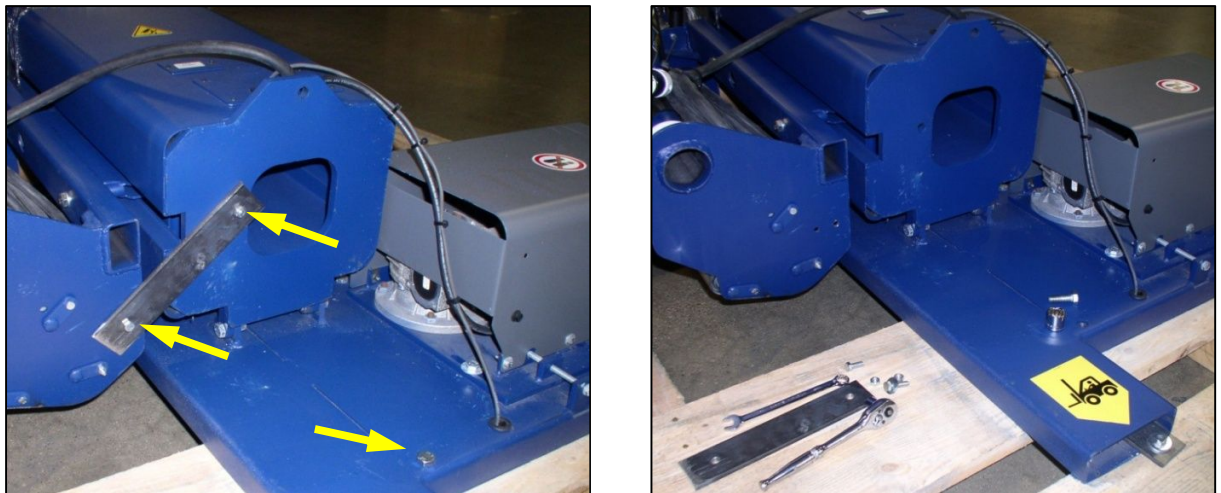


Figure 5.2

2. Use a 13 mm wrench to remove the FDS bracket.
3. Use a 19 mm wrench to remove the bolt that attaches the mast to the base. Keep the bolt.

INSTALLATION

4. Use a 17 mm socket. Remove the bolts that hold the mast brackets to the skid and to the forklift pocket.

Do not remove the bracket from the mast.

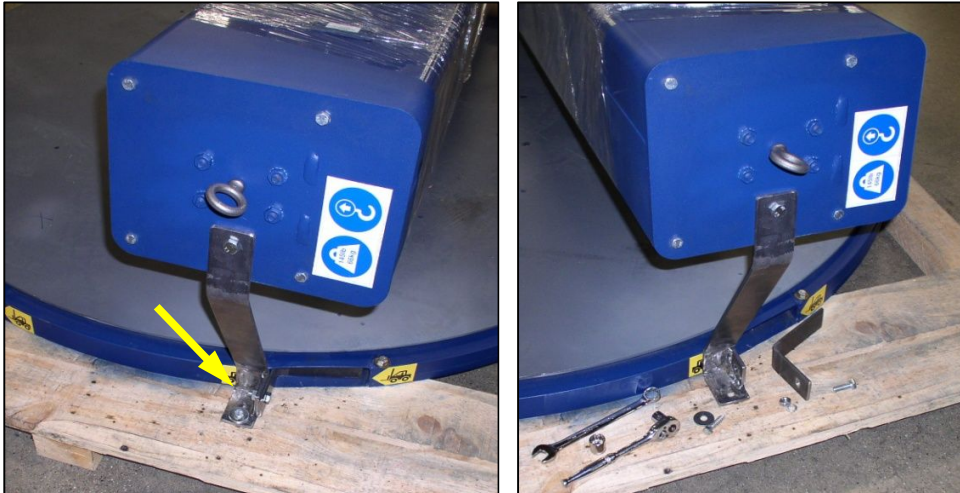


Figure 5.3

5. Put the fork of the forklift into the tube. Use caution to prevent damage to the FDS cover. Cut the strap and remove it from the tube.

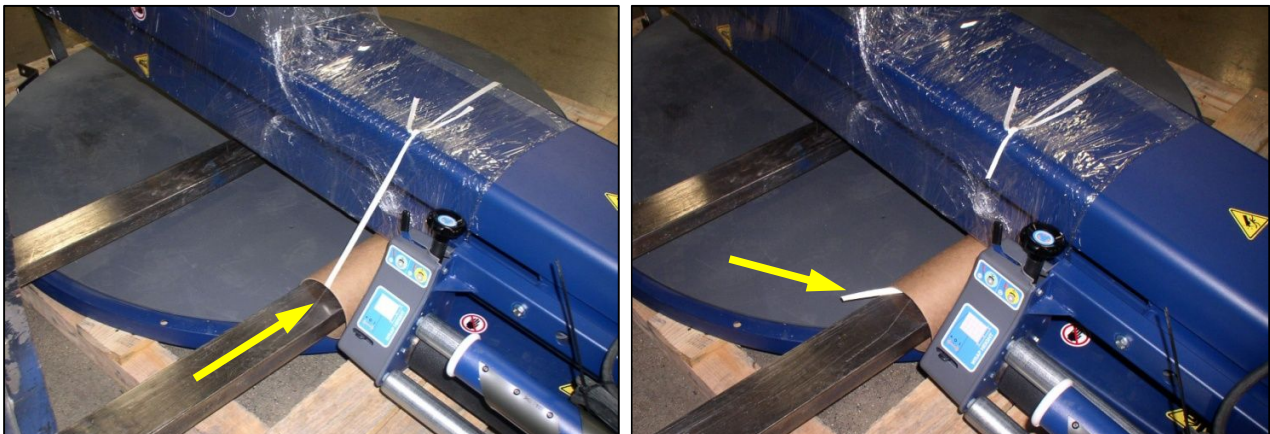


Figure 5.4

INSTALLATION

6. Slowly lift the mast until it is almost in the vertical position. (Figure 5.5)



Figure 5.5

7. Make sure that you do not cause damage to the cables on the base of the mast.

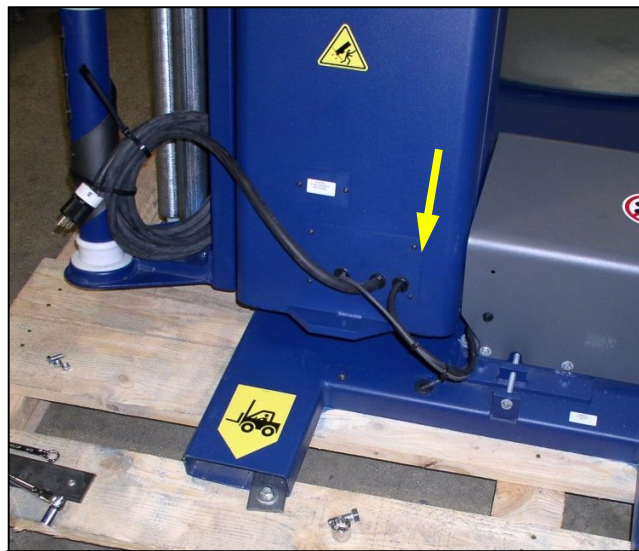


Figure 5.6

INSTALLATION

8. Pull the mast to the full vertical position.



Figure 5.7

9. Attach the mast to the base. Use a 19 mm socket to install the bolt that you removed in Step 3. Torque to 91 N-m (67 lb-ft).



Figure 5.8

INSTALLATION

10. Remove the 6 bolts that hold the machine to the skid.

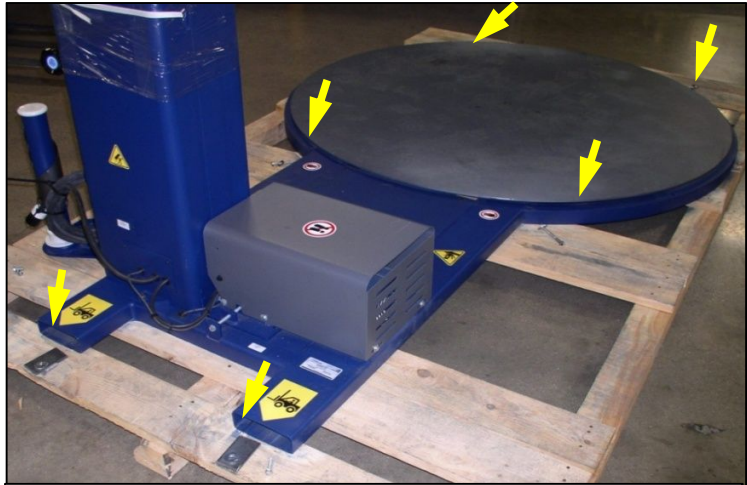


Figure 5.9

11. Put the forks of the forklift into the tubes at the mast or at the turntable end of the base.
Remove the machine from the skid and set it in position.
12. Use a 17 mm wrench to remove the mast shipping bracket.
13. Remove the protective material from the mast.
14. Connect the power cord to the electrical supply.

Note: The machine with the 120VAC supply includes a 4 m (13') power cord with a 20-amp plug. Use a designated 20-amp receptacle. **Do not use an extension cord.**

The machine with the 220VAC supply includes a 4 m (13') power cord without a plug.

OPERATOR INSTRUCTIONS

6.0 Operator Instructions

Note: Functions, descriptions and data can be different on your machine. Refer to Section 3 Options.

Note: It is important to know all components. This includes how to thread the film and operate the controls.

Note: Illustrations are for reference only.



WARNING

Obey all safety label instructions and warnings.



CAUTION

Do not use a sharp object to remove the film that is wound onto the roller.

OPERATOR INSTRUCTIONS

6.1 Sequence of Operation

1. Make sure that the power cord connects in the correct receptacle.
2. Turn the “Power Disconnect” to the “On” position.
3. Twist the “E-stop” to release it.
4. Push the blue “Reset” button and make sure that it illuminates.
5. Make sure that all components are in the home position.
 - Push and hold the “Turntable Rotation Home” button to move the turntable to the home position.
 - Push and hold the FDS “Down Travel” button until the FDS moves to the lowest position and stops.
6. Put a load on the turntable.
7. Thread the film through the FDS.
8. Push the green “Start” button.
9. The turntable turns and energizes the “Delay to Raise the FDS” setting (S.2).
10. The FDS starts to move up.
11. The FDS stops when:
 - The “Up Travel” proximity sensor de-energizes (FDS-PRS1), or
 - The “Film Overwrap” photoelectric sensor clears the top of the load (FDS-PEC1)
12. The FDS applies the Top Wraps.
 - Each revolution, the “Turntable Home” proximity sensor senses the home position and the top wrap count decreases by 1 (ROT-PRS1).
13. After the top wraps are complete, the FDS lowers to the FDS “Down Travel” proximity sensor (FDS-PRS2).
14. The FDS applies the Bottom Wraps.
 - Each revolution, the “Turntable Home” proximity sensor senses the home position and the bottom wrap count decreases by 1 (ROT-PRS1).
15. After the bottom wraps are complete, the turntable speed decreases to home speed.
16. The turntable stops when the “Turntable Home” proximity sensor senses the home position (ROT-PRS1).
17. The machine resets for the next cycle and the totalizer increases by 1.

OPERATOR INSTRUCTIONS

6.2 Components

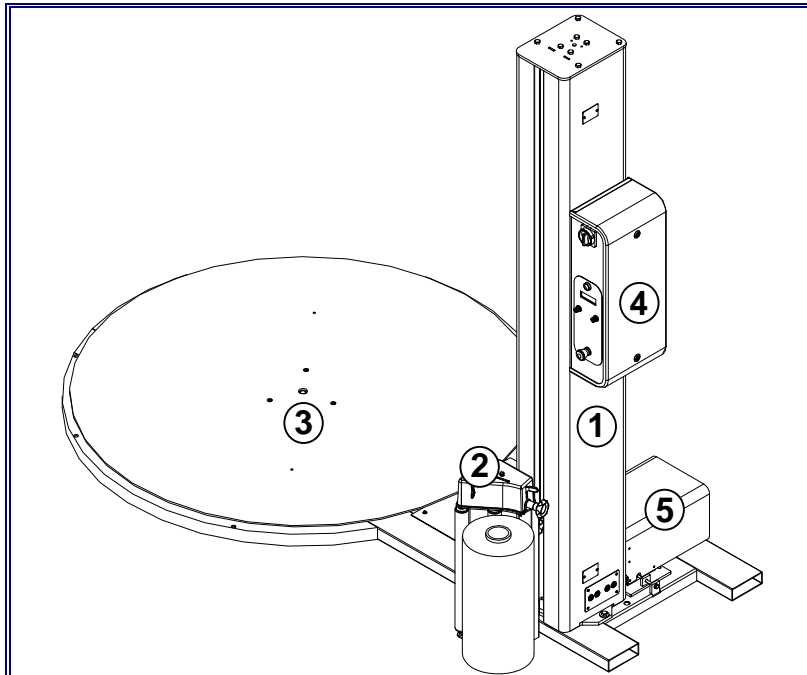


Figure 6.1

1	Mast
2	Film Delivery System (FDS)
3	Turntable Base
4	Controls
5	Turntable Rotation Drive

OPERATOR INSTRUCTIONS

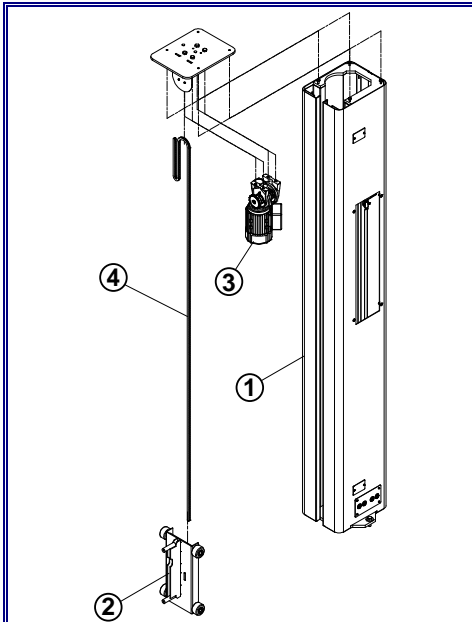


Figure 6.2

1	Mast Frame
2	FDS Carrier
3	Lift Drive
4	Lift Chain

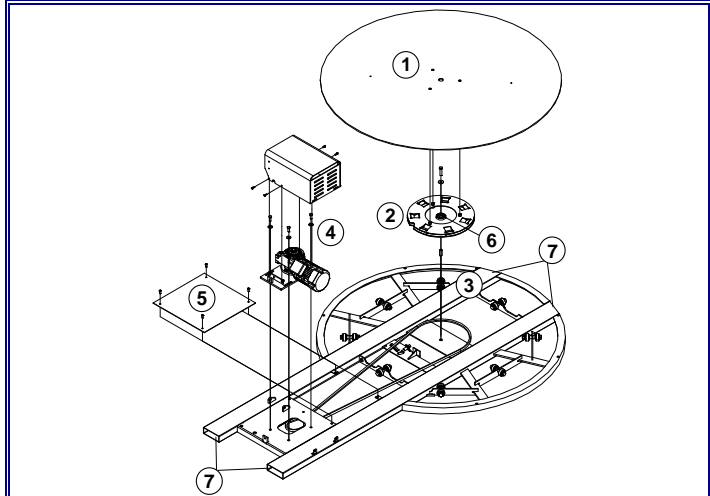


Figure 6.3

1	Turntable Top
2	Drive Ring with Home Proximity Actuator
3	Bearing Support with Home Position Proximity Sensors
4	Turntable Motor and Belt
5	Cover Plate
6	Center Bearing
7	Forklift tubes and access points

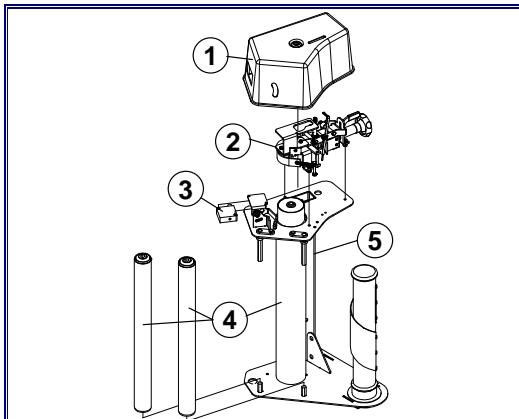


Figure 6.4 – Mechanical Brake

1	FDS Top Cover
2	Film Tension Assembly - Mechanical
3	Film Overwrap Photoelectric Sensor
4	Film Rollers
5	FDS Frame

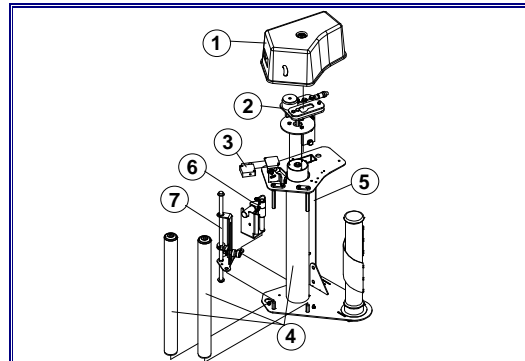


Figure 6.5 – Electrical Brake

1	FDS Top Cover
2	Film Tension Assembly - Electrical
3	Film Overwrap Photoelectric Sensor
4	Film Rollers
5	FDS Frame
6	Auto Film Cut-off™ (Option)
7	Pallet Grip® (Option)

OPERATOR INSTRUCTIONS

6.2.1 Film Delivery System (FDS)

The FDS controls the tension and applies the film to the load.

It includes:

- Idler Rollers
- Roller Brake with adjustable tension control and tension release
- “Film Overwrap” photoelectric sensor

The mechanical brake is standard.

The electrical brake is an option.



Figure 6.6 – Mechanical Brake

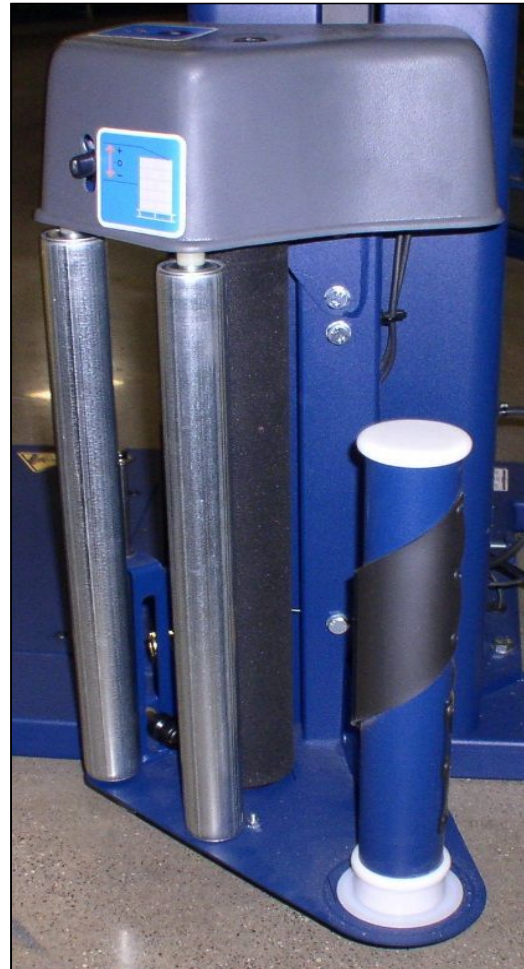


Figure 6.7 – Electrical Brake (Option)

OPERATOR INSTRUCTIONS

6.2.2 FDS Lift Drive

The drive raises and lowers the FDS during the wrap cycle and in the Manual Mode.

Up/Down Proximity Sensors

The mast includes 2 proximity sensors that sense the maximum travel of the FDS.

These sensors are not adjustable.

Chain Tension Switch

This switch senses a loose chain condition.

A loose chain switch disengages the control power to the machine.

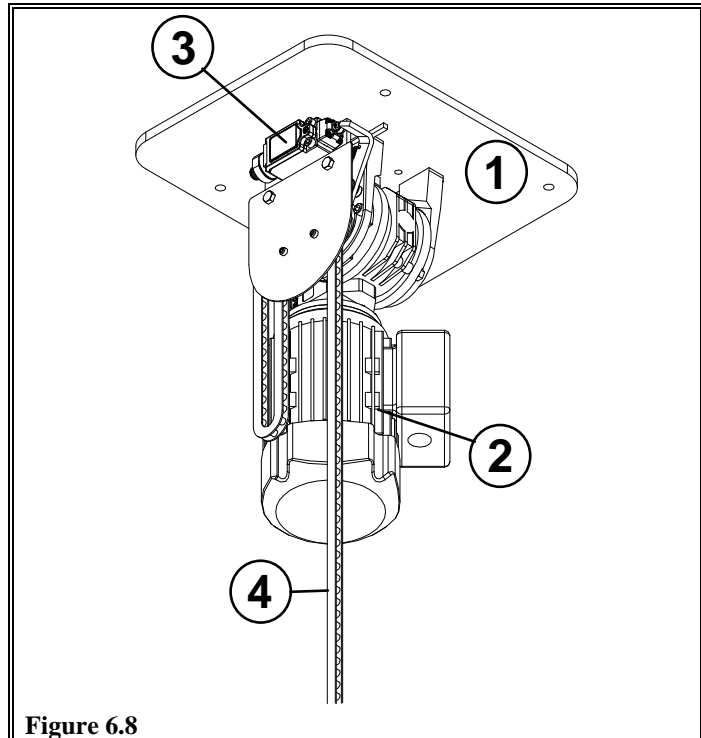


Figure 6.8

1	Mast Top Plate
2	Drive
3	Chain Tension Switch
4	Chain

OPERATOR INSTRUCTIONS

6.3 Controls

The control console is on the aft of the mast.

It includes:

- Relays
- PLC
- Variable Frequency Drive (VFD)



Figure 6.9

OPERATOR INSTRUCTIONS

6.3.1 Control Console

The standard controls are on the side of the control panel, and include:

- The Emergency Stop (E-stop)
- The blue illuminated “Reset” button
- Potentiometers for Turntable Rotation and FDS Lift speed controls
- Potentiometer for the film tension is on the option for the G Force Plus FDS
- Touch pad



Figure 6.10

OPERATOR INSTRUCTIONS

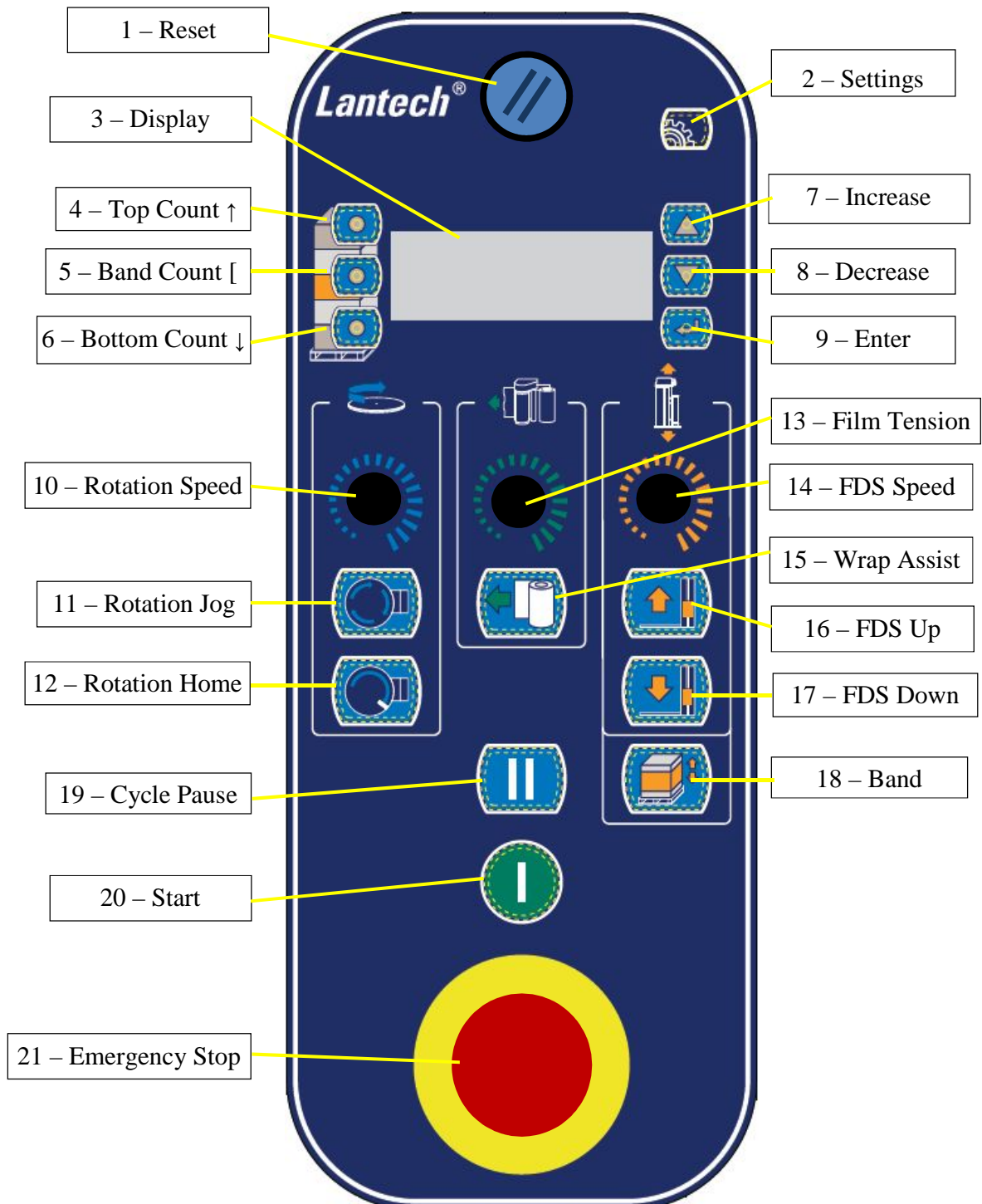


Figure 6.11

OPERATOR INSTRUCTIONS

6.3.2 Functions

1	Reset	This button applies the control power. It illuminates when the control power is on.
2	Settings	This gives access to the timing and diagnostic functions.
3	Display	This shows the machine data.
4	Top Wrap Count	The indicator shows the number of wraps to be applied to the top of the load. Wrap counts increment from 1 – 9.
5	Band Wrap Count	The indicator shows the number of wraps to be applied. Wrap counts increment from 1 – 9.
6	Bottom Wrap Count	The indicator shows the number of wraps to be applied. Wrap counts increment from 1 – 9.
7	Increase the Wrap Counts	This increases the counts for the Top, Bottom and Band wraps.
8	Decrease the Wrap Counts	This decreases the counts for the Top, Bottom and Band wraps.
9	Push the “Enter” button to set the Wrap Counts	This holds the counter settings.
10	Turntable Rotation Speed	The potentiometer increases, decreases the speed of the turntable.
11	Turntable Rotation	This turns the turntable.
12	Home Turntable	This turns the turntable at low speed and stops at the home position.
13	Film Tension – G Force Plus FDS (Option)	The potentiometer increases, decreases the film tension.
14	FDS Speed	The potentiometer increases, decreases the up and down travel speed of the FDS.
15	Wrap Assist (Option with G Force Plus FDS)	This stops the FDS Up, Down travel, decreases the turntable speed by 50% and decreases the film tension by 50%.
16	FDS Up	This raises the FDS and stops at the “Up Travel” proximity sensor.
17	FDS Down	This lowers the FDS and stops at the “Down Travel” proximity sensor.
18	Band	This sets the number of film bands to the load and then continues the wrap cycle.
19	Cycle Pause	This pauses the wrap cycle. Push it a second time to continue the wrap cycle.
20	Start	This starts the wrap cycle.
21	Emergency Stop	A red spring-loaded button that stops the operation of the machine. To release, twist the E-stop.

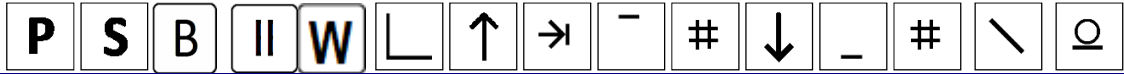
OPERATOR INSTRUCTIONS

6.4 Settings

Setting No.	Description	Min	Max	Default	Decimal Places
S. 1	Start Delay (sec.)	0.5	3.0	0.5	1
S. 2	The Time Delay to raise the FDS at the start of the wrap cycle. (sec.)	.1	12.0	3.0	1
S. 3	The Time Delay to increase the film overwrap.	.1	6.0	1.5	1
S. 4	Turntable Deceleration Position 1=1/4 th , 2=1/6 th , 3= 1/8 th , 4=1/10 th	1	4	4	0
S. 5	The Time Delay to make sure that the FDS is at the top of the load. (sec.)	.1	6.0	4.5	1
S. 6	The Time Delay to decrease the film tension at the start of the wrap cycle. (sec.)	.1	12.0	5.0	1
S. 7	The Time to raise the FDS at the end of the wrap cycle. (sec.)	1.0	9.0	3.0	1
S. 8	Minimum Brake Force at the end of the wrap cycle.	0	20	10	0
S. 9	(AFC Option) – The Time Delay to extend the cutter (sec.)	.1	6.0	1.5	1
S. 10	(AFC Option) – The Time Delay to increase the film tension to break the film (sec.)	1.0	8.0	4.0	1
S. 11	(AFC Option) – The Time Delay to increase the hole in the film.	.2	1.5	.8	1
S. 12	Not Used	0	1	0	0
S. 13	Wrap Assist (% of film tension) (Option)	1	99	50	0
S. 14 – S. 18	Not Used	0	1	0	0
S. 19	Option: G Force Plus with Auto Film Cut-off (0:disable, 1:enable)	0	1	0	0
S. 20	Option: Pallet Grip – Raise the FDS at the end of the wrap cycle. (0:disable, 1:enable)	0	1	0	0
S. 21	Start with bottom wraps. (0:disable, 1:enable)	0	1	0	0
S. 22	Not Used	0	1	0	0
S. 23	The Time Delay to turn the display off. (min) (99:disable)	15	99	30	0
S. 24	Troubleshooting Mode. (0:disable, 1:enable, 2:Operation Status)	0	2	0	0
S. 25	Factory Setting	0	1	0	0
↑:	Top Wrap Counter	1	9	2	0
[:	Band Wrap Counter	1	9	4	0
↓:	Bottom Wrap Counter	1	9	2	0

OPERATOR INSTRUCTIONS

6.4.1 Display Symbols



	Position 1	Power On
	Position 2	Start
	Position 3	Band Wrap
	Position 4	Cycle Pause
	Position 5	Wrap Assist (Option with G Force Plus FDS)
	Position 6	Turntable Rotation
	Position 7	FDS Raise
	Position 8	“Film Overwrap” photoelectric sensor is clear
	Position 9	FDS at “Up Travel” proximity sensor
	Position 10	Top Wraps
	Position 11	FDS Lower
	Position 12	FDS at “Down Travel” proximity sensor
	Position 13	Bottom Wraps
	Position 14	Turntable speed decreases
	Position 15	Turntable Home

OPERATOR INSTRUCTIONS

6.5 Initialize the Machine



CAUTION

Before you initialize the system, read “How to Stop the System”.

6.5.1 How to Stop the Machine

Push the “Emergency Stop”.

6.5.2 How to Start the Machine

1. Connect the machine to the designated power receptacle.
2. Turn the “Power Disconnect” to the “On” position.
3. Twist the “E-stop” to release it.
4. Push the blue “Reset” button. It illuminates when the control power is on.

The blue “Reset” button gives access to all functions to the operator.

6.5.3 How to Get Access to the Settings

1. Push and hold the “Settings” button for 3 seconds.

Do the steps below. If you do not push the “Increase”, “Decrease”, or “Enter” buttons for 3 seconds, the display changes to the “Main Menu”.

2. The display changes and shows the settings and the settings number.
3. Push and release the “Increase” button to move to the next setting.
Push and release the “Decrease” button to move to the prior setting
4. When the display moves to the correct setting, push the “Enter” button. This shows the value for the setting.
5. Use the “Increase” and “Decrease” buttons to move through the values.
6. Push and release the “Enter” button. This holds the value and lets you continue to change the settings. The display changes to the “Main Menu” after 3 seconds

OPERATOR INSTRUCTIONS

6.6 Thread the Film

Refer to the illustration below.

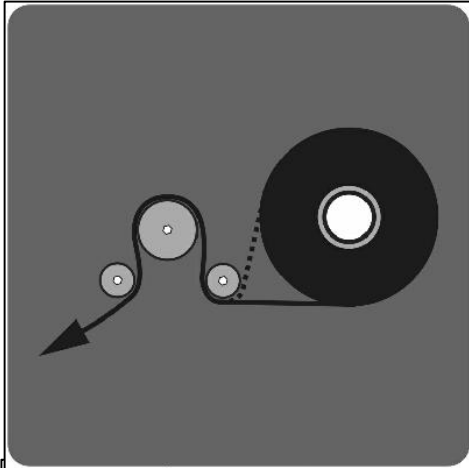


Figure 6.12



Figure 6.13



WARNING

Obey all safety label instructions and warnings.

6.7 Operate the Machine

1. Connect the machine to the designated power receptacle.
2. Turn the “Power Disconnect” to the “On” position.
3. Twist the “E-stop” to release it.
4. Push the blue “Reset” button.
5. Move the “Film Tension” lever to the down position (Mechanical Brake only).
6. Thread the film.
7. Pull the film and attach it to the load.
8. Push the green “Start” button.
9. Engage the “Film Tension” lever (Mechanical Brake only).
10. Cut the film at the end of the cycle.

OPERATOR INSTRUCTIONS

6.8 Overwrap Adjustment

Move the lever on the FDS up, to increase the film overwrap.

Move the lever down, to decrease the film overwrap.

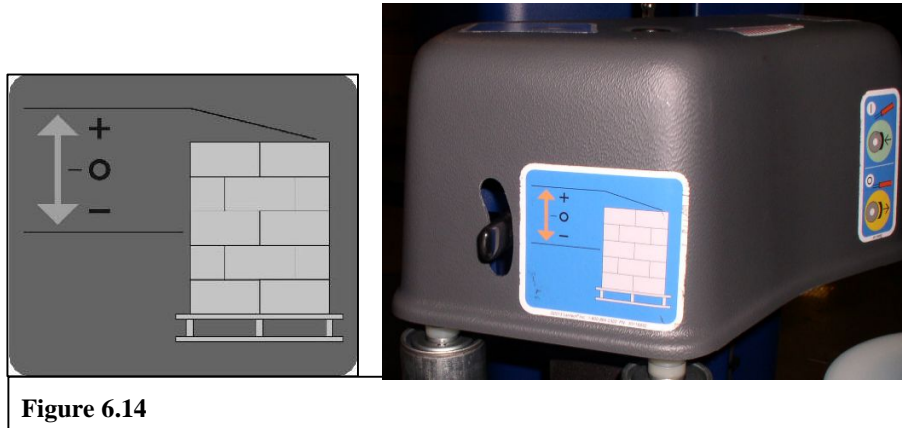


Figure 6.14

6.8.1 Film Tension Off, On

Mechanical Brake

Move the lever in the up direction to engage the film tension.

Move the lever down to disengage the tension.

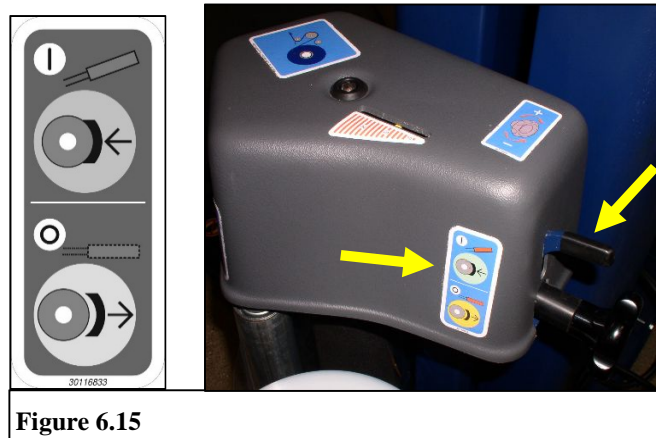


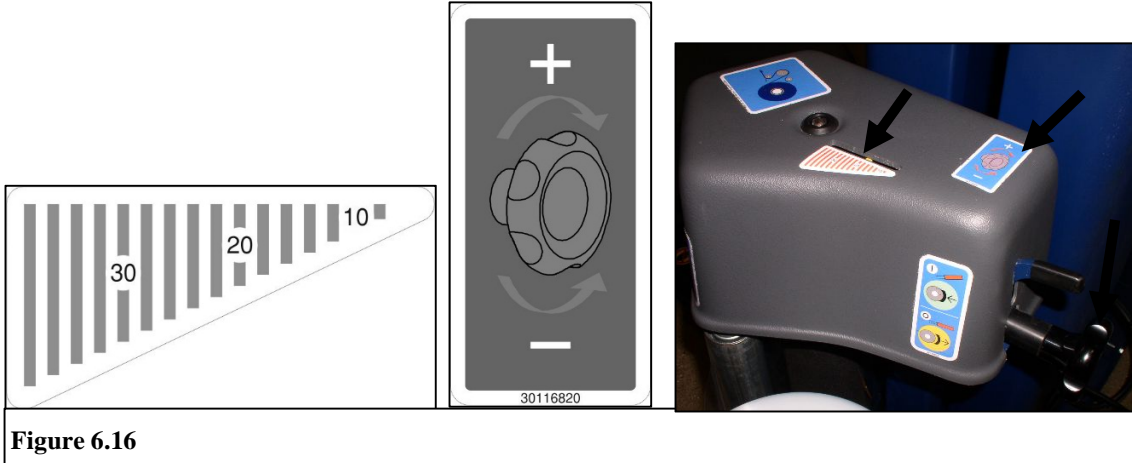
Figure 6.15

OPERATOR INSTRUCTIONS

6.8.2 Film Tension

Mechanical Brake

Turn the knob clockwise to increase and counterclockwise to decrease the film tension. The level of tension shows on the gauge.

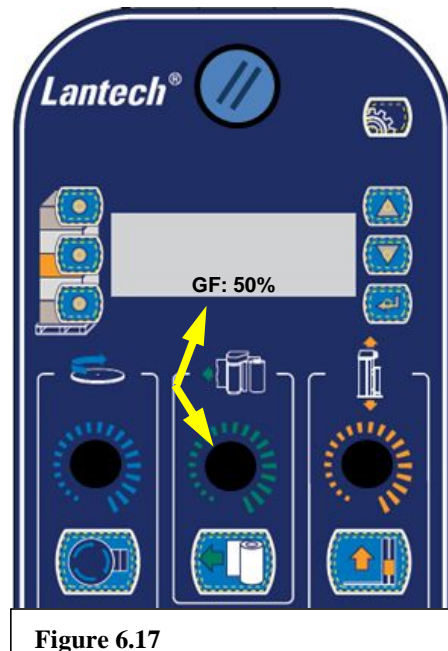


Electrical Brake

The brake automatically engages and disengages the film tension.

Turn the knob on the control console clockwise to increase and counterclockwise to decrease the film tension.

The percentage of tension on the film shows on the display.



MAINTENANCE

7.0 Maintenance



WARNING
Obey the Lockout/Tagout Procedures.

NOTE: Functions, descriptions and data can be different on your machine. Refer to section 3.

7.1 Daily and Weekly Maintenance

- Tighten, replace loose fasteners.
- Look for oil leaks.
- Listen for unusual noise during operation.

7.2 Quarterly Maintenance

- Examine the turntable belt for correct tension and wear.
- Examine the FDS lift chain for wear.
- Examine the safety switch for the chain tension for correct operation.
- Examine the brake pad on the FDS.
- Lubricate the chain with SAE 30 oil.
- Refer to section 3 – Options – for other lubrication requirements.

MAINTENANCE

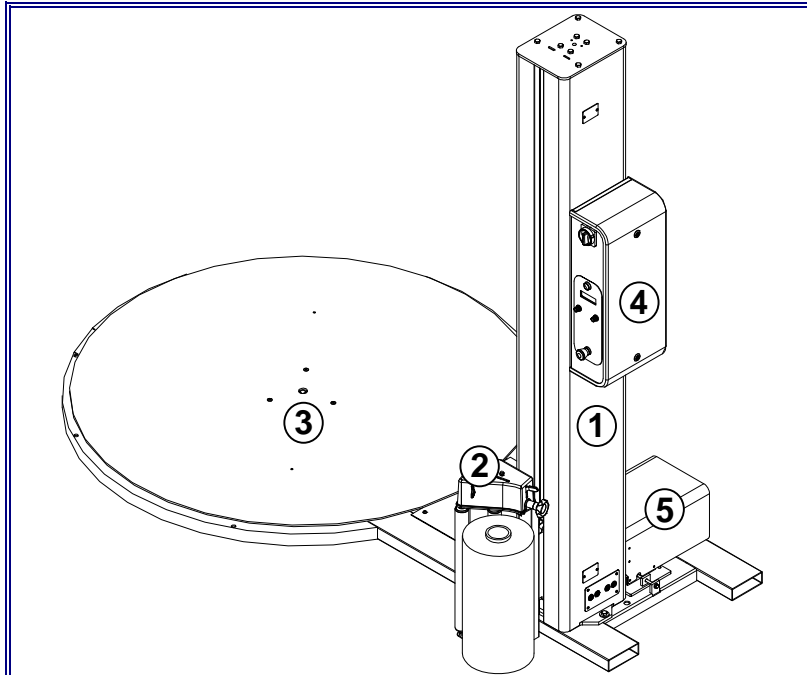


Figure 7.1

1	Mast
2	Film Delivery System (FDS)
3	Turntable Base
4	Control Panel and Console
5	Turntable Rotation Drive

MAINTENANCE

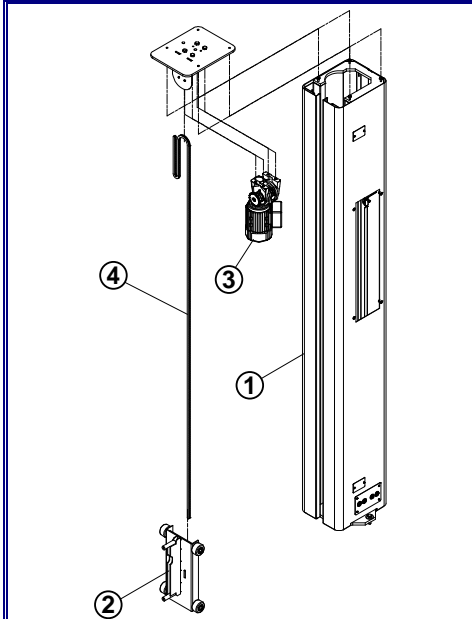


Figure 7.2

1	Mast Frame
2	FDS Carrier
3	Lift Drive
4	Lift Chain

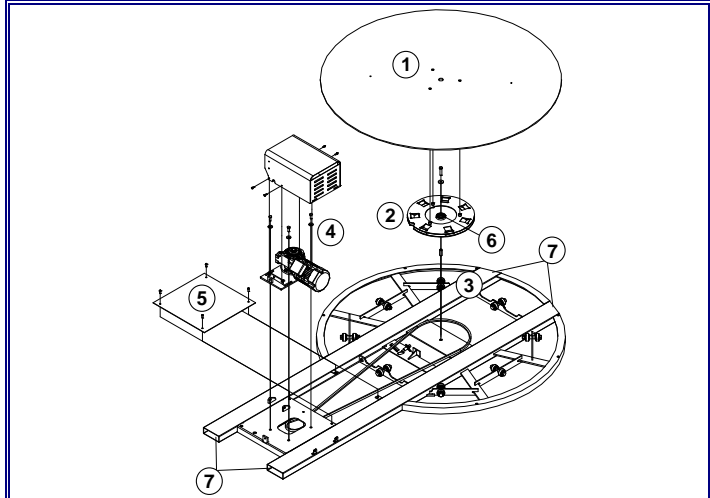


Figure 7.3

1	Turntable Top
2	Drive Ring with Home Proximity Actuator
3	Bearing Support with Home Position Proximity Sensors
4	Turntable Motor and Belt
5	Cover Plate
6	Center Bearing
7	Forklift tubes and access points

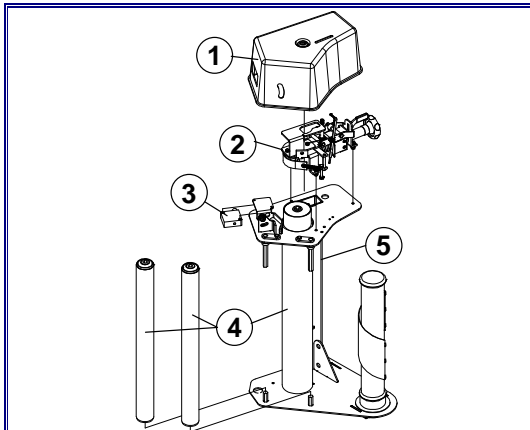


Figure 7.4 – Mechanical Brake

1	FDS Top Cover
2	Film Tension Assembly - Electrical
3	Film Overwrap Photoelectric Sensor
4	Film Rollers
5	FDS Frame

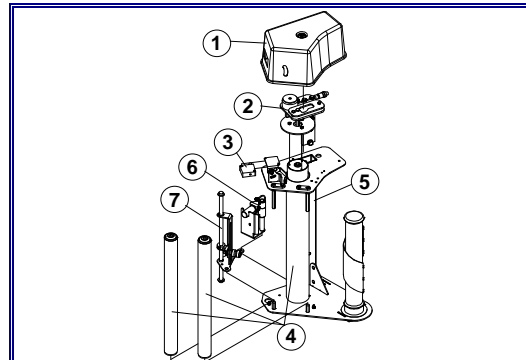


Figure 7.5 – Electrical Brake

1	FDS Top Cover
2	Film Tension Assembly - Electrical
3	Film Overwrap Photoelectric Sensor
4	Film Rollers
5	FDS Frame
6	Auto Film Cut-off™ (Option)
7	Pallet Grip® (Option)

MAINTENANCE

7.3 Mechanical Settings and Adjustments

7.3.1 Turntable Drive Belt

Tools

Force Gauge (Figure 7.6)
5 mm hex wrench
Tape Measure
10 and 13 mm Wrench, Socket

Results

The tension on the belt is set correctly.

New Belt Tension – 11 kg (25 lb) of force at 25 mm (1”) deflection.

Used Belt Tension – 9 kg (20 lb) of force at 25 mm (1”) deflection.

Install the turntable top to the drive ring before you adjust the belt tension.

Procedure

1. Use a 5 mm hex wrench to remove the belt guard from the base (Figure 7.7).
2. Measure the belt tension (force gauge and tape measure). Measure the tension at the edge of the turntable (Figure 7.9). If the tension is correct, replace the guard.

To adjust:

3. Use a 10 mm wrench, socket to remove the turntable drive guard.
4. Use a 17 mm wrench, socket to loosen the 3 bolts that hold the drive assembly to the base.
5. Use the tension screw (Figure 7.8) to adjust the tension of the belt (13 mm wrench).
6. Use a force gauge (Figure 7.6) to measure the tension of the belt. Measure at the edge of the turntable top.
7. Tighten the bolts.
8. Replace the drive guard and the belt guard.



Figure 7.6

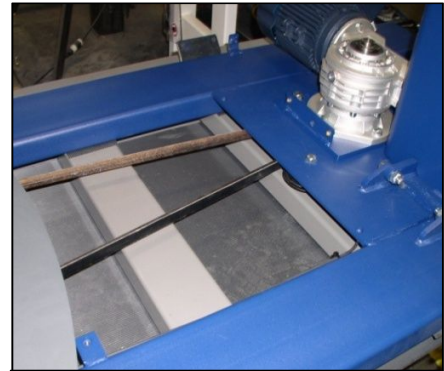


Figure 7.7

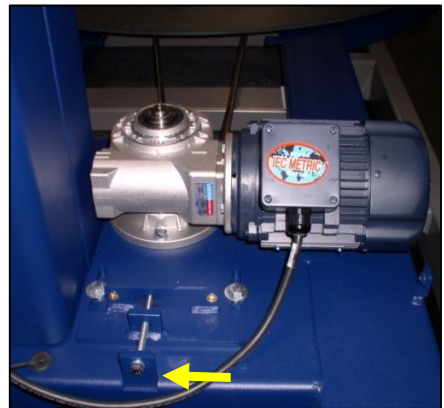


Figure 7.8

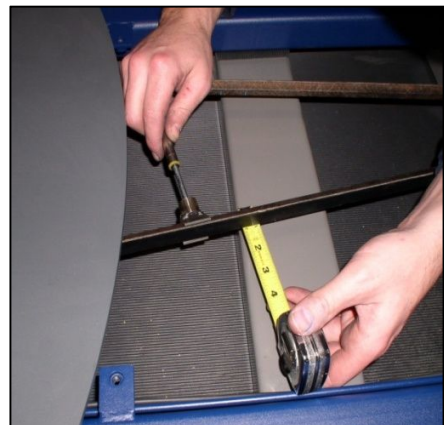


Figure 7.9

MAINTENANCE

7.4 Standard Parts Replacement - Turntable

7.4.1 Turntable Drive Belt

Tools

Force Gauge	2 - 3/8-16 Eye Bolts
Tape Measure	Strap, chain
5 mm hex wrench	Forklift
Wrench and Sockets – 10 mm, 13 mm, and 17 mm	

Results

The turntable belt is installed and the belt tension is set correctly.

- New Belt Tension – 11 kg (25 lb) of force at 25 mm (1”) deflection
- Used Belt Tension – 9 kg (20 lb) of force at 25 mm (1”) deflection

Attach the turntable top to the drive ring before you adjust the belt tension.

Procedure

1. Install the eye bolts on the turntable in the tapped holes.
2. Attach the strap, chain to the eye bolts and then attach to the forklift.
3. Use a 5 mm hex wrench to remove the 3 bolts from the turntable top.
4. Remove the turntable top.
5. Use a 10 mm wrench, socket to remove the turntable drive guard.
6. Use a 5 mm hex wrench to remove the belt guard from the base.

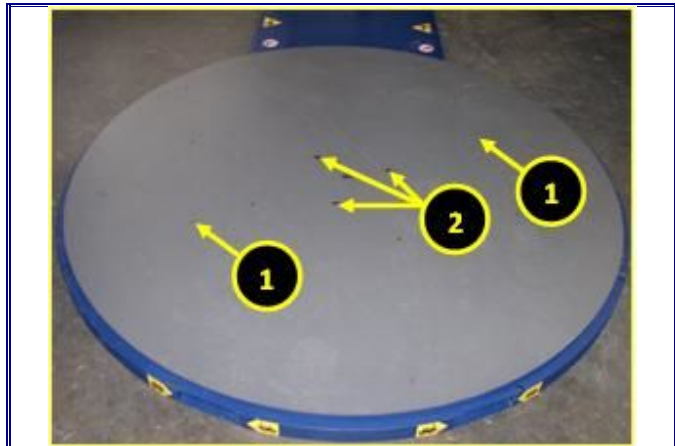


Figure 7.10

1	Eye bolt locations
2	Turntable bolts

MAINTENANCE

7. Use a 13 mm socket to remove the tension adjustment bolt from the turntable drive (Figure 7.11).
8. Use a 17 mm socket to remove the 3 bolts from the turntable drive assembly.
9. Move the drive belt into the slot on the drive ring (Figure 7.12 and 7.13). Turn the ring to remove the belt from the drive ring.
10. Lift the drive assembly off the base and remove the belt.

Make a note of the position of the belt on the idler pulley.

11. Put the new belt on the floor at the drive assembly.

Make sure that there is slack in the belt to put it on the drive pulley.

Make a note of the position of the belt on the idler pulley.

12. Put the drive in position and put the belt onto the drive pulley.
13. Move the drive belt into the slot on the drive ring. Turn the drive ring to install the belt around the ring.



Figure 7.11



Figure 7.12



Figure 7.13

MAINTENANCE

14. Attach the drive assembly to the base. Do not tighten the bolts.
15. Set the turntable top in position on the drive ring and tighten the bolts.
16. Install the tension adjustment bolt to the drive assembly.
17. Use a 13 mm wrench, socket to adjust the tension on the belt.
18. Use a force gauge (Figure 7.16) to measure the tension of the belt. Measure at the edge of the turntable top.
19. Use a 17 mm wrench, socket to tighten the drive assembly bolts.
20. Replace the drive guard and the belt guard.

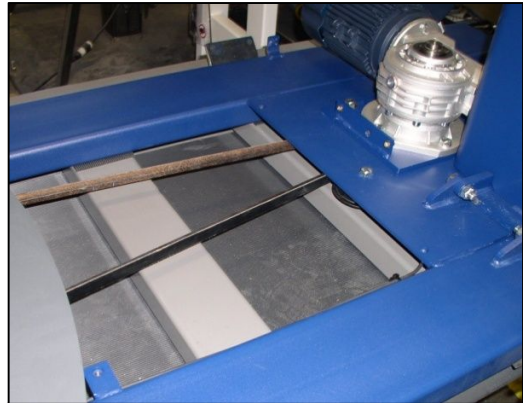


Figure 7.14

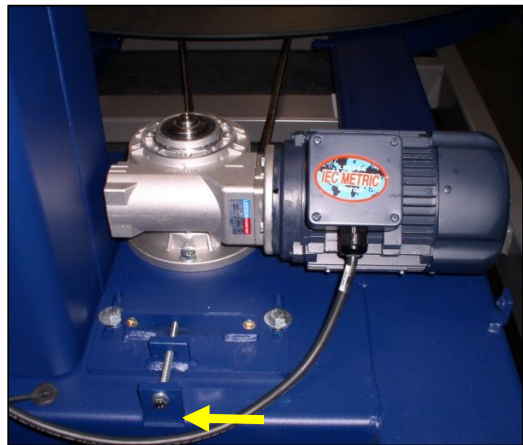


Figure 7.15

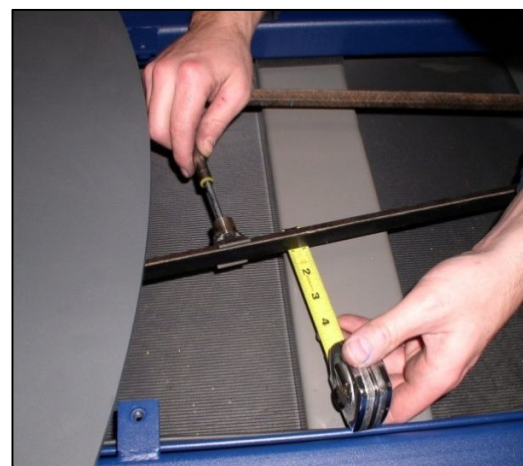


Figure 7.16

MAINTENANCE

7.4.2 Turntable Rotation Drive

Tools

Force Gauge	2 - 3/8-16 Eye Bolts
Tape Measure	Strap, chain
5 mm hex wrench	Forklift
Wrench and Sockets – 10 mm, 13 mm, and 17 mm	

Results

The turntable drive belt is installed and the belt tension is set correctly.

- New Belt Tension – 11 kg (25 lb) of force at 25 mm (1”) deflection
- Used Belt Tension – 9 kg (20 lb) of force at 25 mm (1”) deflection

Attach the turntable top to the drive ring before you adjust the belt tension.

Procedure

1. Install the eye bolts on the turntable in the tapped holes. (Figure 7.17)
2. Attach the strap, chain to the eye bolts and then attach to the forklift.
3. Use a 5 mm hex wrench to remove the 3 bolts from the turntable top.
4. Remove the turntable top.
5. Use a 10 mm hex wrench, socket to remove the turntable drive guard.
6. Use a 5 mm hex wrench to remove the belt guard from the base.
7. Use a 13 mm socket to remove the tension bolt from the turntable drive (Figure 7.18).
8. Use a 17 mm socket to remove the 3 bolts from the turntable drive assembly.

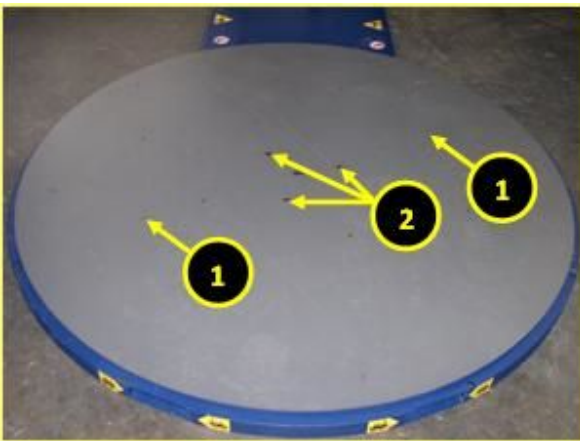


Figure 7.17

1	Eye bolt locations
2	Turntable bolts

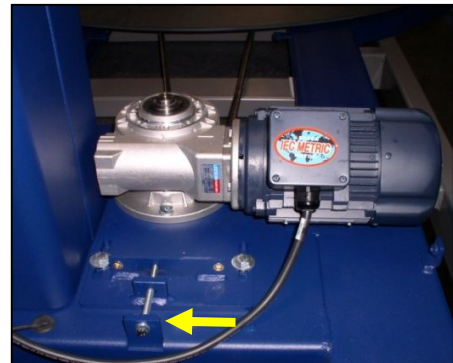


Figure 7.18

MAINTENANCE

9. Move the drive belt into the slot on the drive ring. Turn the ring to remove the belt from the drive ring (Figure 7.19, 7.20).
10. Lift the drive assembly off the base and remove the belt.
Make a note of the position of the belt on the idler pulley.
11. Disconnect the motor cable. Open the junction box and disconnect the wires. Remove the cable and fastener.
12. Use a 17 mm wrench to remove the drive from the bracket.
13. Use a 3/8" wrench to remove the drive pulley from the bushing.
14. Use a 1/8" hex wrench to loosen the setscrew on the bushing.
15. Attach the bushing on the drive shaft.
Make sure that the end of the bushing is equal to the end of the drive shaft.
16. Attach the pulley to the bushing and tighten the bolts.
Torque to 12 N-m (9 lb-ft).
17. Attach the drive assembly to the bracket.
Torque to 47 N-m (35 lb-ft). The correct position of the pulley is 16 mm (11/16") below the top of the bracket (Figure 7.21).
18. Set the drive in position and install the belt onto the drive pulley.
19. Move the drive belt into the slot on the drive ring. Turn the ring to install the belt around the drive ring.



Figure 7.19



Figure 7.20

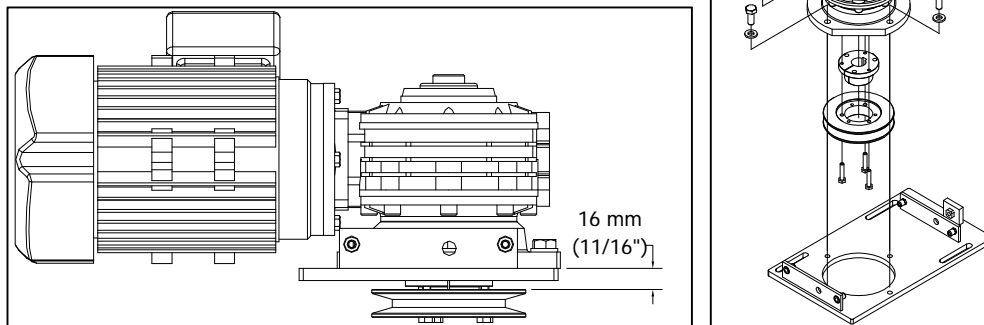


Figure 7.21

MAINTENANCE

20. Connect the motor cable.
21. Attach the drive assembly to the base. Do not tighten the bolts (Figure 7.22).
22. Set the turntable top in position on the drive ring and tighten the bolts.
23. Install the tension adjustment bolt to the drive assembly (Figure 7.23).
24. Use a 13 mm wrench, socket to adjust the tension of the belt.
25. Use a force gauge to measure the tension of the belt. Measure at the edge of the turntable top (Figure 7.24).
26. Use a 17 mm wrench, socket to tighten the drive assembly bolts.
27. Replace the drive guard and the belt guard.

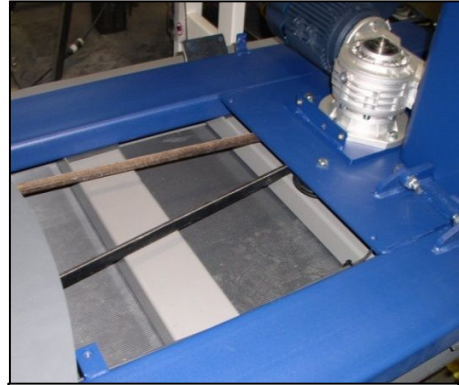


Figure 7.22

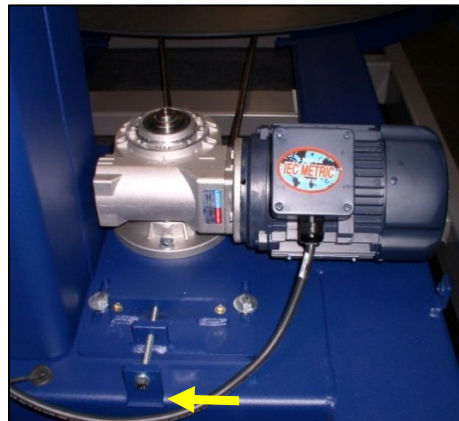


Figure 7.23

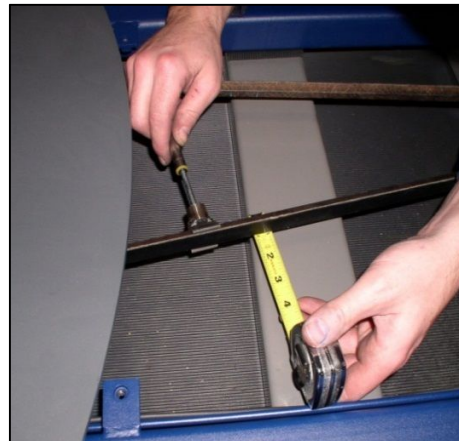


Figure 7.24

MAINTENANCE

7.4.3 Turntable Home Proximity Sensor

Tools

2 – 24 mm Wrenches
Tape Measure
Forklift

2 – 3/8-16 Eye Bolts
Strap, chain

Results

The turntable stops at the home position and the FDS applies the correct number of wraps to the load.

Procedure

1. Install the eye bolts on the turntable in the tapped holes. (Figure 7.25)
2. Attach the strap, chain to the eye bolts and then attach to the forklift.
3. Use a 5 mm hex wrench to remove the 3 bolts from the turntable top.
4. Remove the turntable top.
5. Use (2) 24 mm wrenches to remove the proximity sensor.
6. Connect the cable.
7. Install the new sensor. Adjust the switch to extend 16 mm (11/16") through the mount (Figure 7.26).
8. Set the turntable top in position on the drive ring and tighten the bolts.

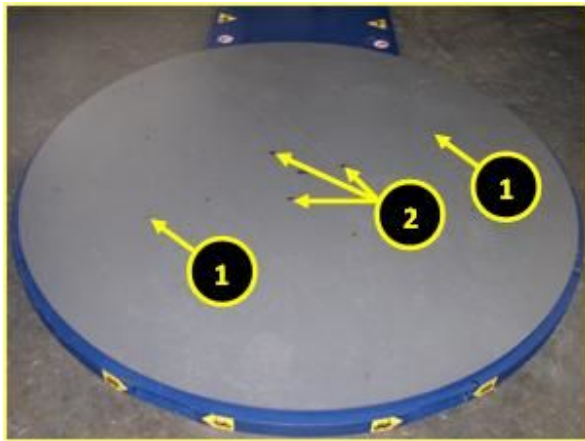


Figure 7.25

1	Eye bolt locations
2	Turntable bolts

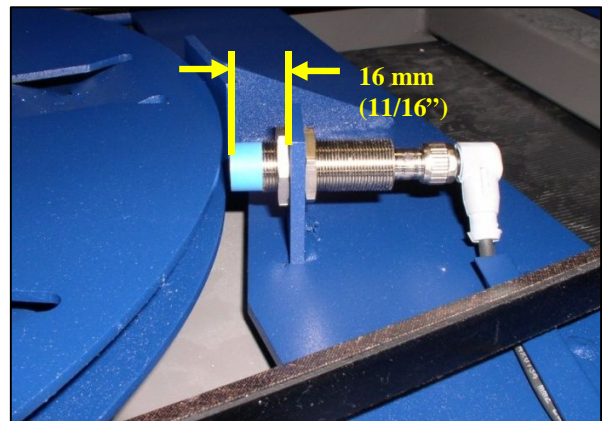


Figure 7.26

MAINTENANCE

7.4.4 Turntable Wheel Assembly

Tools

2 - 24 mm Wrenches
2 – 3/8-16 Eye Bolts
Strap, chain
Forklift

Results

The turntable turns smoothly.

Procedure

1. Install the eye bolts on the turntable in the tapped holes. (Figure 7.27)
2. Attach the strap, chain to the eye bolts and then attach to the forklift.
3. Use a 5 mm hex wrench to remove the 3 bolts from the turntable top.
4. Remove the turntable top.
5. Use the (2) 24 mm wrenches to remove the wheel assembly (Figure 7.28).
6. Install the new wheel assembly and torque to 124 N-m (92 lb-ft).

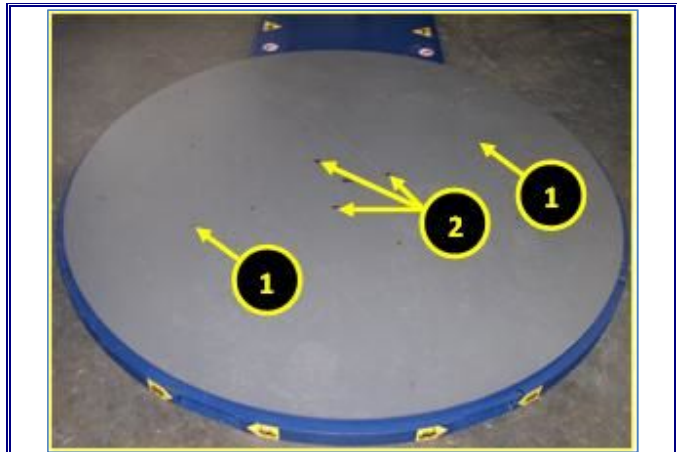


Figure 7.27

1	Eye bolt locations
2	Turntable bolts



Figure 7.28

MAINTENANCE

7.5 Standard parts Replacement - FDS

7.5.1 FDS Lift Chain

Tools:

- 4 mm Hex Wrench
- Torque Wrench
- Needle Nose Pliers
- Strap, chain
- Forklift (recommended)
- Sockets - 8 mm, 13 mm, 17 mm, 19 mm

Results

The FDS moves up and down the mast smoothly and the chain tension switch operates correctly.

To replace this chain, you must lower the mast and put it in a horizontal position.

Procedure

1. Use a 13 mm socket to remove the top cover of the FDS.
2. Disconnect the cable to the photoelectric sensor.
3. Use a 17 mm socket to remove the FDS (Figure 7.30).
4. Remove the cable.

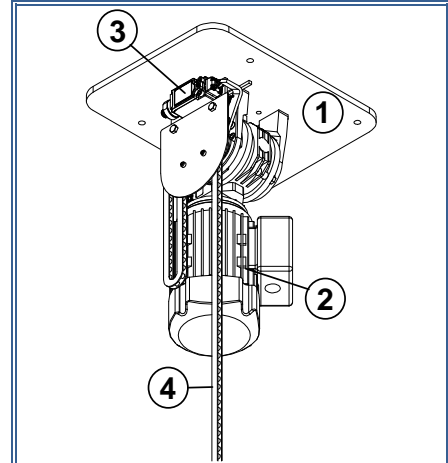


Figure 7.29

1	Mast Top Plate
2	Drive
3	Chain Tension Switch
4	Chain

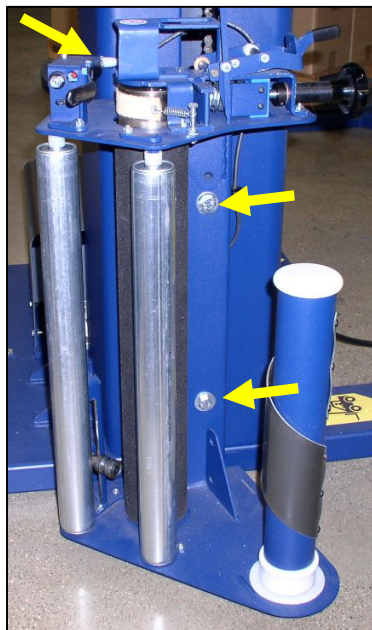


Figure 7.30



Figure 7.31

MAINTENANCE

5. Put a film roll on the turntable to hold the weight of the mast.
6. Attach a strap, chain to the top of the mast and attach to the forklift (Figure 7.32).
7. Use a 19 mm socket to remove the bolt that attaches the mast to the base (Figure 7.31).
8. Slowly tilt the mast until the forklift can hold the weight of the mast. Lower the mast until it sets on the support on the turntable (Figure 7.32 - 33).
9. Remove the chain from the top cap.



Figure 7.32



Figure 7.33

MAINTENANCE

10. Use a 13 mm socket to remove the bolts from the top cap.
11. Pull the top cap out and set on the floor (Figure 7.34).
12. Disconnect the motor cable. Open the junction box and disconnect the wires. Remove the cable and fastener.
13. Make a note of how the chain is installed around the sprocket and the chain tension switch. Count the number of links in the loop of the chain before you remove it.
14. Use a 17 mm socket to remove the drive assembly.
15. Remove the master link and disconnect the chain from the top cap (Figure 7.35).
16. Move the FDS carrier to the top of the mast.
17. Use a 4 mm hex wrench and 8 mm wrench to disconnect the chain from the carrier (Figure 7.36).
18. Attach the new chain to the carrier.



Figure 7.34

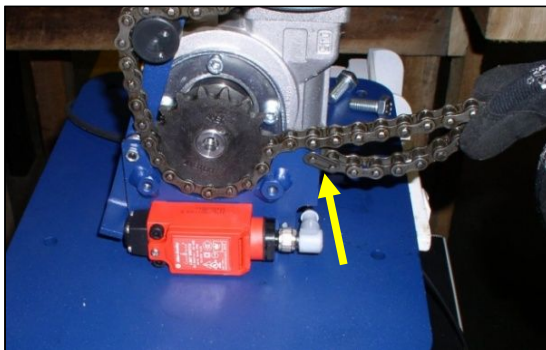


Figure 7.35



Figure 7.36

19. Set the carrier in the mast and slowly move to the bottom of the mast.
20. Install the chain around the drive sprocket and the chain tension switch. Refer to your notes from step 13 and put the same number of chain links in the loop.
21. Attach the chain master link to the top cap.
22. Attach the drive assembly to the top cap.
23. Push the cables into the channels in the mast.
24. Put the loop of chain from the FDS into the mast (Figure 7.37).
25. Install the top cap.
26. Attach the strap, chain from the forklift to the top cap.



Figure 7.37

MAINTENANCE

27. Slowly lift the mast until it is almost in the vertical position.
28. Make sure that you do not cause damage to the cables on the base of the mast.
29. Pull the mast to the full vertical position.
30. Use a 19 mm socket to install the bolt to attach the mast to the base. Torque to 91 N-m (67 lb-ft).
31. Attach the FDS assembly to the FDS carrier.
32. Extend the cable to the photoelectric sensor and connect it.
33. Replace the guard on the FDS.

7.5.2 FDS Chain Tension Switch

Tools:

Forklift (recommended) Strap, chain
 Sockets – 13 mm, 17 mm, 19 mm Torque Wrench

Results

The switch stops the machine in a slack condition.

Slack Chain Recovery

1. Use caution until you apply the power to the machine and correct the slack chain condition.
2. Look for blockage that prevents the down travel of the FDS.

Warning
Removal of the blockage lets the down travel of the FDS continue and puts the chain in tension.

- a. Remove the blockage
- b. Push and release the blue “Reset” button. The blue “Reset” LED illuminates.
3. Complete a test to make sure that the machine operates correctly. If it does not, continue with steps 4 – 8 below.

Warning
Wear safety gloves to continue with the next steps.
Make sure that you schedule qualified personnel for this recovery process.

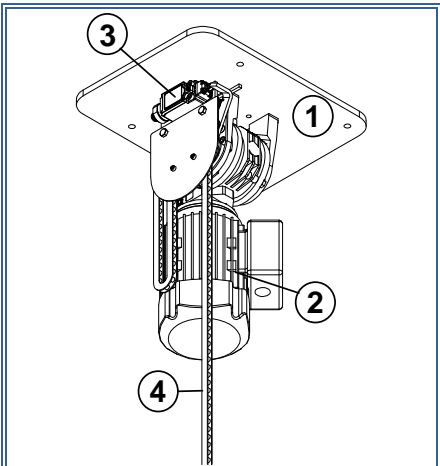


Figure 7.38

1	Mast Top Plate
2	Drive
3	Chain Tension Switch
4	Chain

MAINTENANCE

4. Set the FDS Speed Potentiometer to the 12 o'clock position.
5. Pull down on the chain and hold it to set the tension. You can hear a "Click" when the chain tension is set.
6. Push and release the blue "Reset" button. The blue "Reset" LED illuminates.

Note: The failure to keep the tension on the chain causes the loss of power.

7. Push the FDS "Raise" button until the chain is under tension and the FDS moves up. Release the chain.
8. Complete a test to make sure that the machine operates correctly. If not, do step 4 –8 again.

To replace this switch, you must lower the mast and put it in a horizontal position.

Procedure

1. Use a 13 mm socket to remove the top cover of the FDS.
2. Disconnect the cable to the photoelectric sensor.
3. Use a 17 mm socket to remove the FDS (Figure 7.39).
4. Remove the cable.
5. Put a film roll on the turntable to hold the weight of the mast.
6. Attach a strap, chain to the top of the mast and attach to the forklift.
7. Use a 19 mm socket to remove the bolt that attaches the mast to the base (Figure 7.40).
8. Slowly tilt the mast until the forklift can hold the weight of the mast (Figure 7.41 - 42).

Lower the mast until it sets on the support on the turntable.

Use caution to prevent damage to the electrical cables on the base of the mast.

9. Remove the chain from the top cap.

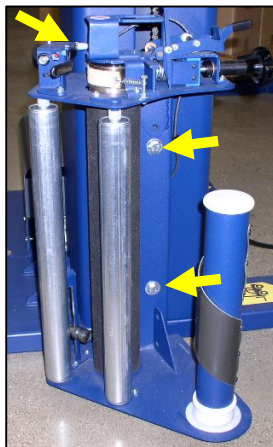


Figure 7.39

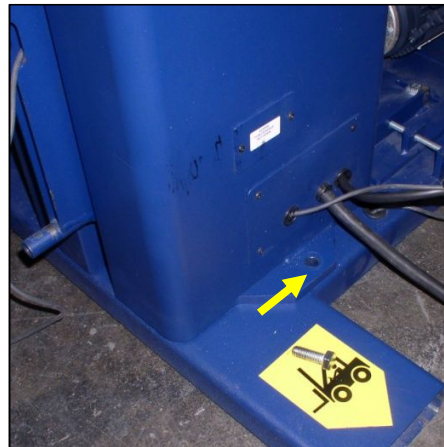


Figure 7.40

MAINTENANCE



Figure 7.41



Figure 7.42

MAINTENANCE

10. Use a 13 mm socket to remove the bolts from the top cap.
11. Pull the top cap out to get access to the switch (Figure 7.43).
12. Disconnect the cable from the switch.
13. Use a 4 mm hex wrench to remove the switch (Figure 7.44).
14. Replace the switch and connect the cable.
15. Make sure that the slack chain engages the switch.
16. Install the top cap.
17. Push the cables into the channels in the mast.
Use caution to prevent damage to the cables.
18. Put the loop of the FDS chain on the frame (Figure 7.45).
19. Attach the strap, chain from the forklift to the top of the mast.
20. Slowly lift the mast until it is almost in the vertical position.
21. Make sure that you do not cause damage to the cables on the base of the mast.
22. Pull the mast to the full vertical position.
23. Use a 19 mm socket to install the bolts to attach the mast to the base. Torque to 91 N-m (67 lb-ft).
24. Attach the FDS assembly to the FDS carrier.
25. Extend the cable to the photoelectric sensor and connect.
26. Replace the guard on the FDS.



Figure 7.43

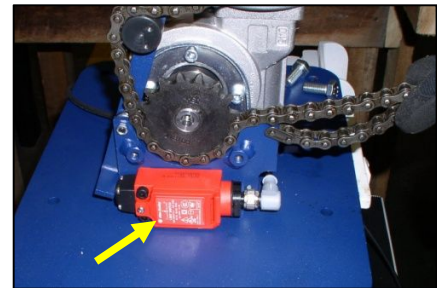


Figure 7.44



Figure 7.45

MAINTENANCE

7.5.3 FDS Lift Drive

Tools:

Sockets – 13 mm, 17 mm, 19 mm
Torque Wrench
Forklift (recommended)
Strap, chain

To replace this drive, you must lower the mast and put it in a horizontal position.

Procedure

1. Use a 13 mm socket to remove the top cover of the FDS.
2. Disconnect the cable to the photoelectric sensor.
3. Use a 17 mm socket to remove the FDS (Figure 7.47).
4. Remove the cable.

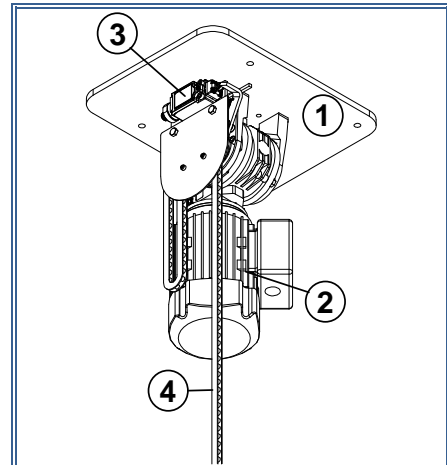


Figure 7.46

1	Mast Top Plate
2	Drive
3	Chain Tension Switch
4	Chain

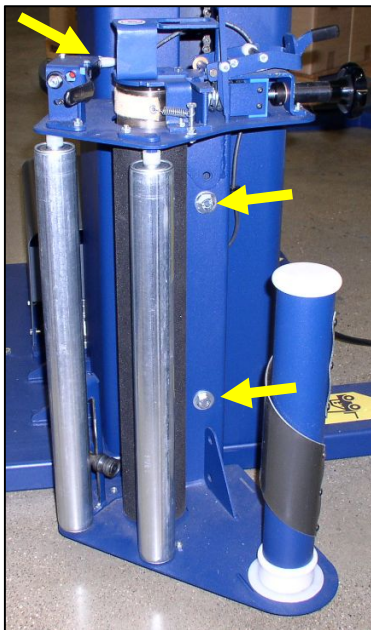


Figure 7.47

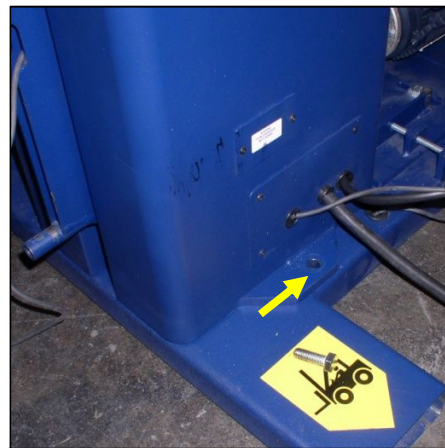


Figure 7.48

MAINTENANCE

5. Put a film roll on the turntable to hold the weight of the mast.
6. Attach a strap, chain to the top of the mast and attach to the forklift.
7. Use a 19 mm socket to remove the bolt that attaches the mast to the base (Figure 7.48).
8. Slowly tilt the mast until the forklift can hold the weight of the mast (Figure 7.49 - 50). Lower the mast until it sets on the support on the turntable.
9. Remove the chain from the top cap.



Figure 7.49



Figure 7.50

MAINTENANCE

10. Use a 13 mm socket to remove the bolts from the top cap.
11. Pull the top cap out and set on the floor (Figure 7.51).
12. Disconnect the motor cable. Open the junction box and disconnect the wires. Remove the cable and fastener.
13. Make a note of how the chain is installed around the sprocket and the chain tension switch. Count the number of links in the loop of the chain before you remove it (Figure 7.52).



Figure 7.51

14. Make a note of the position of the sprocket on the shaft. Remove the sprocket and install it on the new drive assembly.

15. Install the chain around the drive sprocket and the chain tension switch. Refer to your notes from step 13 and put the same number of chain links in the loop.

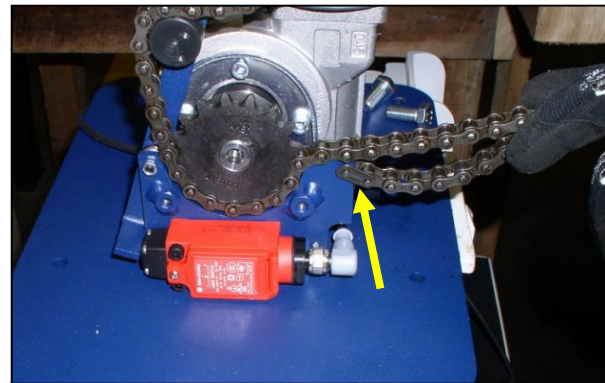


Figure 7.52

16. Attach the drive assembly to the top cap.
17. Install the top cap.
18. Push the cables into the channels in the mast.
19. Put the loop of the chain on the frame (Figure 7.53).

20. Attach the strap, chain from the forklift to the top cap.
21. Slowly lift the mast until it is almost in the vertical position.
22. Make sure that you do not cause damage to the cables on the base of the mast.
23. Pull the mast to the full vertical position.
24. Use a 19 mm socket to install the bolts to attach the mast to the base.

Torque to 91 N-m (67 lb-ft).

25. Attach the FDS assembly to the FDS carrier.
26. Extend the cable to the photoelectric sensor and connect.
27. Replace the guard on the FDS.



Figure 7.53

MAINTENANCE

7.5.4 FDS Roller Brake Pad – Mechanical Brake

Tools

3 mm Hex Wrench
Wrenches - 7 mm, 10 mm
(2) 19 mm Wrenches
Torque Wrench
10 mm Allen wrench

Results

The tension on the film roller is correct.

Procedure

1. Use a 10 mm Allen wrench to remove the FDS cover (Figure 7.54).
2. Use a 7 mm wrench to remove the friction belt (Figure 7.55).
3. Use a 10 mm wrench to remove the 3 bolts that attach the brake to the FDS.
4. Remove the cotter pin and washer from the brake release and remove the brake (Figure 7.56).

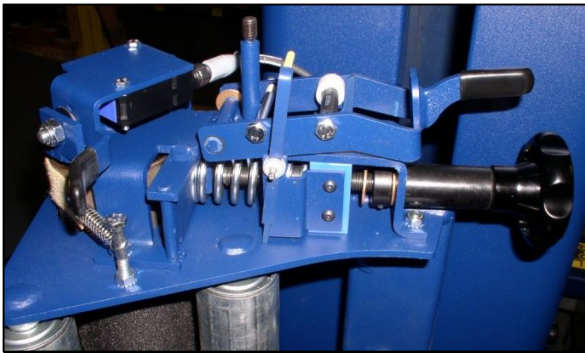


Figure 7.54

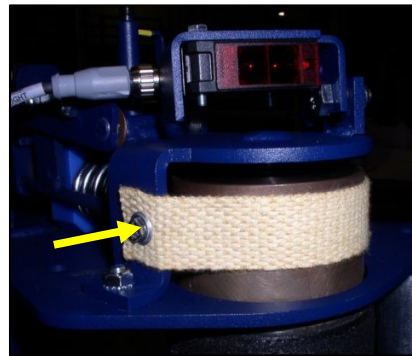


Figure 7.55

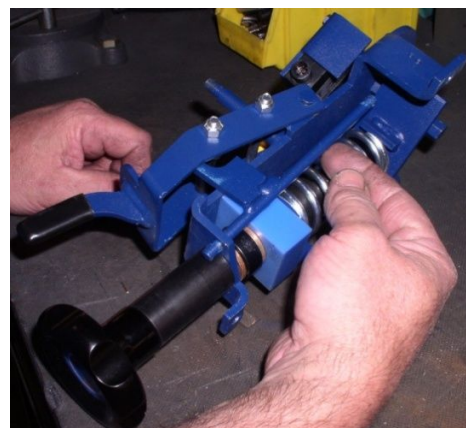
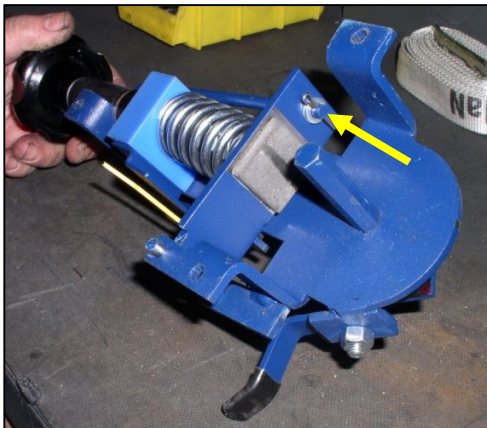


Figure 7.56

MAINTENANCE

5. Use the 3 mm hex wrench to loosen the set collar.
6. Turn the film tension knob clockwise to decrease the tension shaft and remove the compression spring (Figure 7.57). The tension shaft is reverse thread.
7. Use the (2) 19 mm wrenches to loosen and remove the jam nuts from the end of the shaft (Figure 7.58).
8. Remove the nylon spacer.
9. Turn the knob clockwise to remove the spacer block.
10. Turn and remove the brake pad (Figure 7.59).

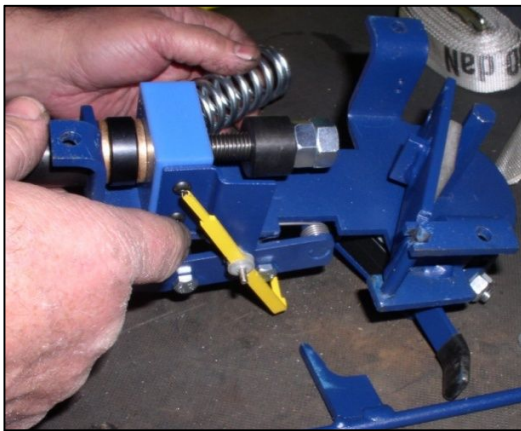


Figure 7.57

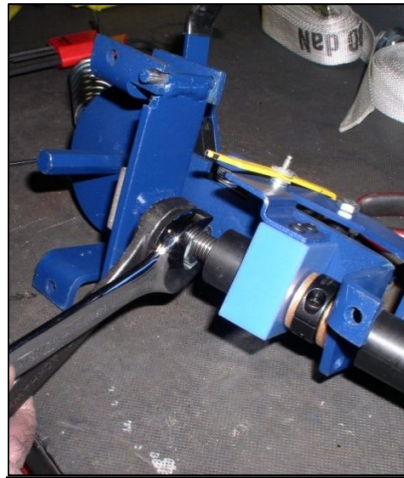


Figure 7.58



Figure 7.59

MAINTENANCE

11. Install the new brake pad (Figure 7.60).
12. Attach the spacer block and the nylon spacer.
13. Put the 2 nuts on the end of the shaft.
14. Install the compression spring on the shaft.
15. Turn the knob counterclockwise until the shaft is inserted and the spacer block almost touches the set collar.
16. Tighten the set collar and make sure that it turns freely.
17. Install the brake release on the brake pad and attach the washer and cotter pin.
18. Set the brake in position on the top of the FDS.

Make sure that the tension needle and the brake pad shaft align in the holes on the top plate of the FDS. (Figure 7.61).

19. Attach the brake to the FDS and torque the bolts to 9.6 N-m (85 lb-in).
20. Attach the friction belt to the brake and torque to 3 N-m (27 lb-in).
21. Attach the FDS cover.

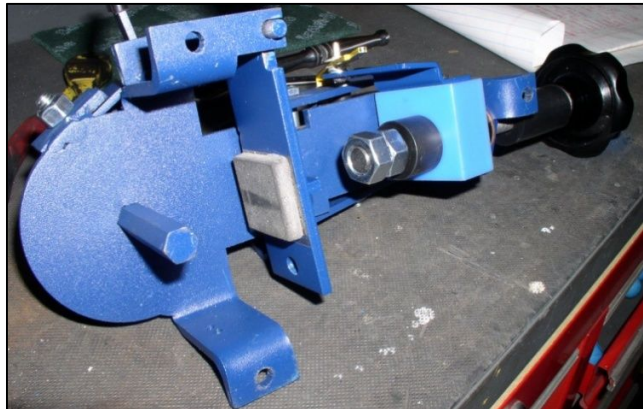


Figure 7.60

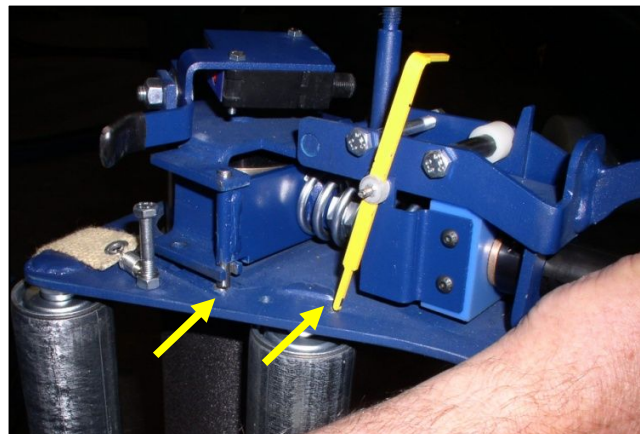


Figure 7.61

MAINTENANCE

7.5.5 FDS Roller Brake Pad – Electrical Brake

Tools:

Allen wrench – 3 mm, 4mm, 10 mm
 10 mm Wrench
 13 mm Wrench, Socket
 Torque Wrench
 .040” Feeler Gauge
 Lithium Grease

Results

The tension on the film roller is correct.

Procedure

Keep the fasteners to use for assembly.

Disassemble the Brake

1. Use the 10 mm Allen wrench to remove the cover on the FDS.
2. Disconnect the solenoid cable.
3. Disconnect the photoelectric sensor cable.
4. Use the 13 mm wrench to remove the (2) M8 fasteners on the solenoid assembly (Figure 7.64).

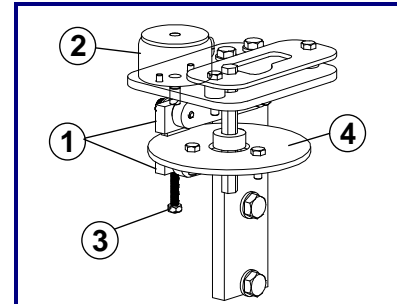


Figure 7.62 – Without the FDS Top Plate

1	Brake Pads
2	Solenoid
3	Set Screw with Jam Nut
4	Disc Brake Plate

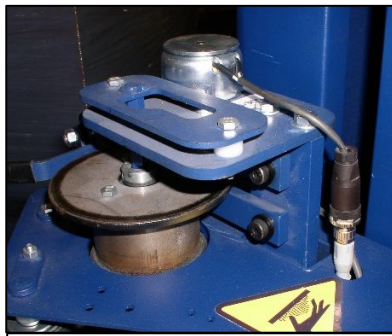


Figure 7.63 - Electric Brake

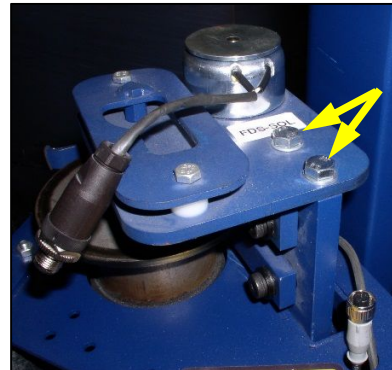


Figure 7.64

MAINTENANCE

5. Raise the top brake pad arm to the vertical position (Figure 7.65).
6. Lift and remove the film roller. (Figure 7.66).
7. Use the 4 mm Allen wrench to remove the top and bottom brake pads from the arm.



Figure 7.65



Figure 7.66

Assemble the Brake

8. Put the lithium grease on the O-rings (Figure 7.67).
9. Use the sequence below to assemble the brake pads.
 - a. Bolt
 - b. Washer
 - c. O-ring
 - d. Brake Pad
 - e. Washer
 - f. Arm.
10. Torque the fasteners to 17 N-m (150 lb-in).
Make sure that the last washer is on the shoulder of the bolt.
11. Install the film roller.
12. Install the solenoid assembly.
13. Torque the fasteners to 27 N-m (20 lb-ft).
14. Attach the photoelectric sensor cable.
15. Attach the solenoid cable.
16. Use the .040 feeler gauge to measure the gap between the top of the solenoid and the solenoid plunger.
17. If the gap is not correct, continue with the steps below to adjust.
 - a. Use the gauge and the 3 mm Allen wrench to loosen the jam nut on the set screw.
 - b. Adjust the gap.
 - c. Use the 10 mm wrench to tighten the jam nut.
 - d. Torque to 10.2 N-m (90 lb-in).
18. Install the FDS cover.



Figure 7.67

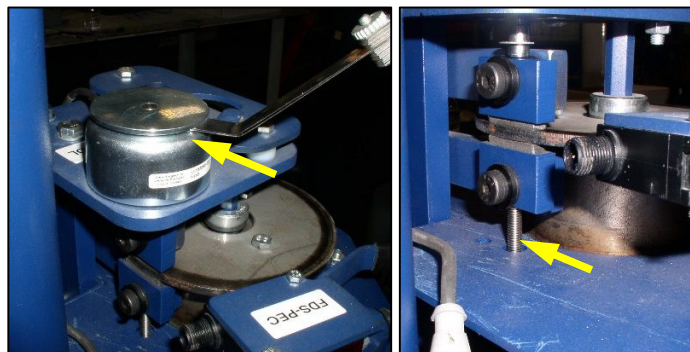


Figure 7.68

MAINTENANCE

7.5.6 FDS Up/Down Travel Proximity Sensor

Tools:

8.2mm Hex wrench
24 mm Wrench
Tape Measure

Results

The proximity sensors operate correctly.

Procedure

1. Use a 2.5 mm hex wrench to remove the proximity sensor mount (Figure 7.62).
2. Use the 24 mm wrench to loosen and remove the sensor from the bracket.
3. Disconnect the cable.
4. Attach the cable to the new sensor.
5. Install the sensor to the bracket. Refer to the dimensions in Figure 7.70.
6. Install the bracket in the mast.

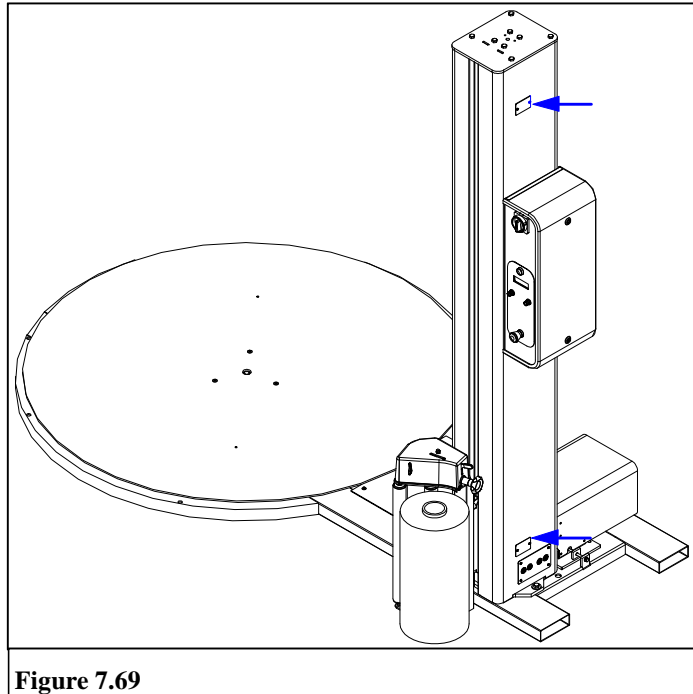


Figure 7.69

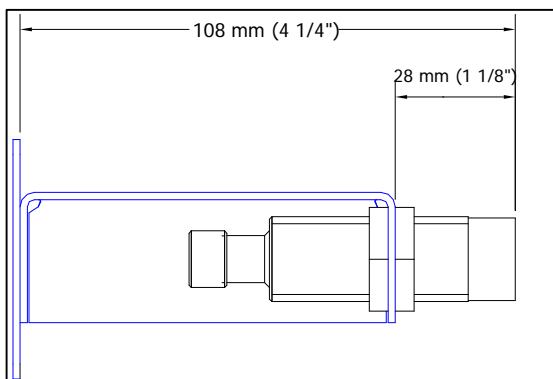


Figure 7.70

TROUBLESHOOTING

8.0 Troubleshooting

This section tells some of the problems that can occur.

- Refer to the electrical and mechanical drawings
- Refer to the Maintenance section for adjustments.

See Section 1.1 for Lantech support.

8.1 General Data

	Problem	Possible Cause	Solution
1	The machine does not start.	No power at the receptacle.	Examine the power circuit.
		The Power cord is disconnected.	Connect the power cord.
		The “Power Disconnect” is not “On”.	Turn the “Power Disconnect” to the “On” position.
		The Emergency Stop is engaged.	Twist to release the “E-stop” and push the blue “Reset” button.
		The control power is not “On”.	Push the blue “Reset” button to turn the control power on.
		The chain tension switch is “On”.	Remove the blockage from below the FDS. See Section 7.5.2 Slack Chain Recovery.
2	The machine operates but you do not have access to the settings.	There is no power to the machine.	Apply the power to the machine.
3	The FDS does not apply the film to the top of the load.	The “Film Overwrap” photoelectric sensor is not set correctly.	Use the overwrap gauge and adjust the sensor.

8.2 Turntable

	Problem	Possible Cause	Solution
4	The turntable does not turn when you push the Jog button.	The load is too heavy.	Compare the weight of the load with the capacity.
		The turntable drive does not operate correctly.	Examine the drive motor and reducer.
		Turntable drive belt.	Look for damage on the drive belt.
			Make sure that the belt tension is set correctly.
	The turntable motor control does not operate correctly.	Examine the motor control.	

TROUBLESHOOTING

	Problem	Possible Cause	Solution
5	The turntable makes an unusual noise when it turns.	The floor is not flat.	Make sure that the floor is level.
		There is debris below the turntable.	Remove the debris.
		Look for damage to: Drive ring Center bearing	Look for damage, debris below the turntable.
		To examine these components, remove the turntable top. Refer to section 7 Maintenance	Examine the drive ring for damage, debris.
			Examine the bearing support for damage, debris.
The pallets are defective.	Examine, replace the pallets.		
6	The turntable does not start easily.	The floor is not flat.	Make sure that the floor is level.
		There is debris below the turntable.	Remove the debris.
		Look for damage to: Drive ring Center bearing	Look for damage, debris below the turntable.
		To examine these components, remove the turntable top. See Section 7 Maintenance	Examine the drive ring for damage, debris.
			Examine, replace the turntable drive belt.
		The turntable drive does not operate correctly.	Examine the drive motor and reducer.
The load is too large, heavy.	Compare the weight of the load with the capacity.		
7	The incorrect number of top, bottom wraps is applied to the load.	The setting on the control console is not correct.	Adjust the settings.
		The “Turntable Home” proximity sensor does not operate correctly.	Examine the sensor (Rot-PRS1) input for function.
			Input I.06 on the PLC flashes as the turntable moves through the home position.
			Remove the turntable top and examine, adjust the sensor.
Examine the cable for damage. Make sure that the cable connects to the sensor.			
8	The FDS wraps continuously at the top of the load.	The “Turntable Home” proximity sensor does not operate correctly.	Examine the sensor (ROT-PRS1) input for function. Input I.06 on the PLC flashes as the turntable moves through the home position.
			Remove the turntable top and examine, adjust the sensor.
			Examine the cable for damage. Make sure that it connects with the sensor.

TROUBLESHOOTING

8.3 Film Delivery System (FDS)

	Problem	Possible Cause	Solution
9	Push the FDS “Up” button and the FDS does not move up.	The FDS “Up Travel” proximity sensor does not operate correctly.	Examine, replace the sensor (FDS-PRS1). Examine the cable for damage. Make sure that it connects with the sensor.
		The control for the FDS lift does not operate correctly.	Make sure that the input and output voltage to the drive control is correct. (FDS-VFD)
		The gear drive and motor do not operate correctly.	Examine the armature wires on the drive motor.
		The VFD does not operate correctly.	Make sure that the input voltage to the VFD is correct. Examine the cable for damage.
10	Push the FDS “Down” button and the FDS does not move down.	The speed control is set too low.	Adjust the speed control.
		The “Down Travel” proximity sensor does not operate correctly.	Examine, replace the sensor (FDS-PRS2) Examine the cable for damage. Make sure that it connects with the sensor.
		The control for the FDS lift does not operate correctly.	Make sure that the input and output voltage to the drive control is correct. (FDS-VFD)
		The gear drive and motor do not operate correctly.	Examine the armature wires on the drive motor.
		The FDS does not move freely.	Make sure that there is no blockage in the path of the FDS. Examine the guide rollers for blockage.
		The VFD does not operate correctly.	Make sure that the input voltage to the VFD is correct. Examine the cable for damage.
11	The FDS does not wrap to the top of the load.	The speed control is set too low.	Adjust the speed control.
		The “Film Overwrap” photoelectric sensor is not set correctly.	Adjust, align the sensor (FDS-PEC1).
		The “Film Overwrap” photoelectric sensor does not operate correctly.	Examine, replace the sensor.
		The “Up Travel” proximity sensor does not operate correctly.	Examine, replace the sensor. (FDS-PRS1)
12	The FDS does not move the correct distance above the load during the wrap cycle.	The “Film Overwrap” photoelectric sensor is not set correctly.	Adjust, align the sensor.
		The “Film Overwrap” photoelectric sensor does not operate correctly.	Examine, replace the sensor.

TROUBLESHOOTING

	Problem	Possible Cause	Solution
13	The FDS does not stop at the “Up Travel” proximity sensor.	The sensor does not operate correctly.	Examine, replace the sensor (FDS-PRS1) Move the FDS to the “Up” proximity sensor and examine for function.
		The “Film Overwrap” photoelectric sensor is not set correctly.	Adjust, align the sensor (FDS-PEC1).
		The “Film Overwrap” photoelectric sensor does not operate correctly.	Examine, replace the sensor.
14	The FDS does not move to the bottom position during the wrap cycle.	The FDS chain is in a slack condition.	Look for blockage of the FDS.
		The “Down Travel” proximity sensor does not operate correctly.	Move the FDS to the “Down” proximity sensor and examine for function. (FDS-PRS2)
15	The FDS does not move down during the wrap cycle.	The top wrap counter does not operate correctly.	Examine the “Turntable Home” proximity sensor (ROT-PRS1) input for function.
		The “Down” proximity sensor does not operate correctly.	Move the FDS to the “Down” proximity sensor and examine for function. (FDS-PRS2)
		The chain tension switch does not operate correctly.	Examine, replace the switch (FC-LS1)
16	Mechanical Brake. The FDS does not apply the film at the correct tension.	The film tension lever is “Off” (in the down position).	Move the lever to the “On” (up) position.
		The idler rollers do not turn freely.	Examine, replace the roller.
		The film is not threaded correctly.	Thread the film.
		There is damage on the film roll.	Look for damage, replace the film roll.
		There is an adhesive from the film on the roller.	Use ammonia, detergent to clean the rollers.
		The tension is set too high.	Turn the tension knob counterclockwise to lower the tension.
		There is damage to the brake pad.	Examine, replace the brake pads.
17	G Force Plus electrical brake. The FDS does not apply the film at the correct tension.	The idler rollers do not turn freely.	Examine, replace the roller.
		The film is not threaded correctly.	Thread the film.
		There is damage on the film roll.	Look for damage, replace the film roll.
		There is an adhesive from the film on the roller.	Use ammonia, detergent to clean the rollers.
		The tension is set too high.	Adjust the potentiometer on the control panel for the film tension.
		There is damage to the brake pad.	Examine, replace the brake pads.

TROUBLESHOOTING

	Problem	Possible Cause	Solution
18	Mechanical Brake. The film breaks during the wrap cycle.	There is an adhesive from the film on the roller.	Use ammonia, detergent to clean the rollers.
		There are sharp edges on the load.	Remove the sharp edges.
		The tension is set too high.	Turn the tension knob counterclockwise to lower the tension.
		There is damage on the roller.	Examine, replace the roller.
		There is damage to the film roll.	Examine, remove the damaged film.
		There is damage to the brake pad.	Examine, replace the brake pads.
19	G Force Plus electrical brake. The film breaks during the wrap cycle.	There is an adhesive from the film on the roller.	Use ammonia, detergent to clean the rollers.
		There are sharp edges on the load.	Remove the sharp edges.
		The tension is set too high.	Adjust the potentiometer on the control panel for the film tension.
		There is damage on the roller.	Examine, replace the roller.
		There is damage to the film roll.	Examine, remove the damaged film.
		There is damage to the brake pad.	Examine, replace the brake pads.
20	The film winds around the roller.	There is an adhesive from the film on the roller.	Use ammonia, detergent to clean the rollers.
		There is damage on the roller.	Examine, replace the roller.
21	Mechanical Brake The film pulls off the load at the start of the wrap cycle.	The tension is set too high.	Turn the tension knob counterclockwise to lower the tension.
			Move the lever to the “off” (down) position.
22	Mechanical Brake The film does not thread easily.	The tension is set too high.	Move the lever to the “off” (down) position.
23	Machines with G Force Plus FDS, with Auto Film Cut-off (AFC): The film does not cut at the end of the wrap cycle.	The AFC device is out of adjustment.	Adjust the position of the AFC.
		The AFC is “Off”. (Setting S.19)	Make sure that the setting for.19 is set at 1.
		The settings S.9, S.10 and S.11 are not set correctly. These settings control the AFC functions	Reset the settings to the default values and make sure that all functions operate correctly.
24	Machines with G Force and Pallet Grip: The film does not cut at the end of the wrap cycle.	The S.7 timer is set too low. (The End of Cycle Ascend FDS) If the film cable stays at the bottom of the film, the film does not cut correctly.	Adjust the S.7 timer. Make sure that the FSD raises and disengages the groove roller on the Pallet Grip assembly.

TROUBLESHOOTING

APPENDIX - WARRANTY

9.0 Appendix

CE Declaration of Conformity

Glossary

Warranty

9.1 Glossary

Auto Film Cut-off – This option automatically cuts the film at the end of the wrap cycle.

Bandings – This is the number of wraps that the FDS applies to a selected section of the load. The settings are from 1 to 9.

Bottom Wrap - This sets the number of wraps for the bottom of the load. The settings are from 1 to 9.

Emergency Stop (E-stop) – The E-stop is a red button that safely stops the machine in an emergency condition.

Film Delivery System (FDS) - This is the Electrical/Mechanical assembly that applies the film to the load

FDS Carrier – The carrier is the fab that holds the FDS assembly. The assembly bolts to the carrier.

G Force Plus FDS – This option uses an electric brake to control the tension on the film.

Initialize - This sets the safety circuits and puts all components in the start position

Lockout/Tagout - These procedures make sure that the machine is off and not started up before you complete the maintenance work.

Mast – The upright that holds the FDS and the control panel

Overwrap – The number of wrap counts at the top of the film above the top of the load.

Pallet Grip – This options locks the load to the pallet.

Pause – This control pauses the wrap cycle then lets you continue without the need to reset the machine.

Reset - This blue button applies the control power to the machine. It illuminates when the control power is on.

Settings – The settings are adjustable timers and counters that control the machine operation.

Top Wrap - This sets the number of wraps for the top of the load. The settings are from 1 to 9.

Turntable Top - This is a circular plate that holds the load and turns during the wrap cycle.

Wrap Assist – This option decreases the turntable speed and the film tension. It makes it easy to “rope” the film and apply cornerboards, top sheets, labels, etc.

APPENDIX - WARRANTY

9.2 Warranty

All Lantech machines include a warranty against a defect in:

- Material
- Design
- Manufacturing

Lantech has the option to repair, replace the machine, part if:

- Lantech is the manufacturer, vendor of the part.
- The part is defective.
- Lantech knows about the defect before the warranty period ends.

Obey the steps below to prevent the cancellation of your warranty

The actions can cancel the warranty:

- The failure to operate the machine by Lantech instructions.
- The failure to obey the maintenance instructions.
- A change to the parts, the machine without Lantech approval.
- An accident that can cause the machine to be damaged.
- An environment where the weather conditions can cause the machine to be damaged.
- The failure to operate the machine by the environmental specifications.

This includes:

- An environment where moisture causes corrosion of parts.
- Explosive environment.
- The failure to prepare the area correctly for installation and maintenance.

This includes:

- The electrical supply is not sufficient.
- The floor is not flat.
- The thickness of the floor is not correct.
- The floor has a crack in the area where the machine is installed.
- The machine is installed near joints in the floor.

The warranty stops if the machine moves to a new customer.

Unless Lantech agrees in writing, this warranty does not include the requirements for federal, local, safety, environmental regulations and standards.

European standards:

- Supply of machine with Orgalime General Conditions

PARTS LIST AND DRAWINGS

10.0 Parts Lists and Drawings

How to Use This Section

This section helps the operator and maintenance personnel find the parts and assemblies. The drawings follow each parts list.

How to Find a Part Number

1. Find the drawing that contains the part.
2. Find the part on the drawing and the item number for the part.
3. Use the item number to find the part on the parts list. Refer to the part number, description and quantity.

Send your parts order to the local Lantech® Distributor.

Refer to Section 1.1 for Lantech support.

