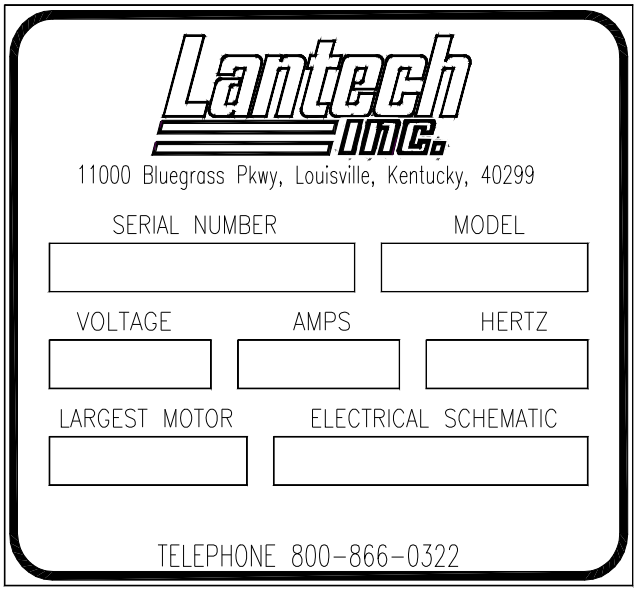
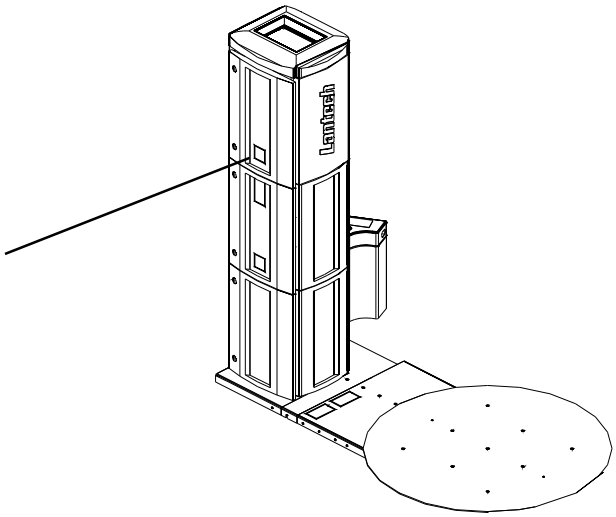
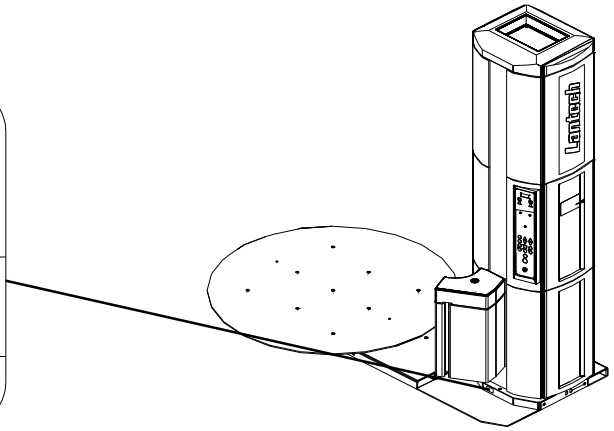
MACHINE IDENTIFICATION

Each Lantech Inc. Stretch Wrap Machine is identified with a serial number plate and decal. The plate is located at the base of the upright. The decal is located on the panel door.

If service should become necessary, you will need the information found on the serial number decal.







Distributor: Write in the local Lantech distributor name and contact information here:

Distributor Name: _____
Distributor Address: _____
_____
_____
_____

Distributor Phone: _____
Distributor Contact: _____

Q- Series Operator & Maintenance Manual
Table of Contents

1.0 INTRODUCTION

IMPORTANT SAFETY INFORMATION

Any power equipment can be unsafe or operate inadequately if it is not properly installed, operated by trained personnel, and periodically maintained. Procedures recommended in this manual will provide safe operation and reliable performance. Some service procedures in this manual may require special tools. These special tools should be used when recommended.

We include **DANGERS**, **WARNINGS**, **CAUTIONS**, and **NOTES** to alert you to specific procedures which insure safety for personnel and satisfactory operation. These words have special meaning which are described below:

DANGER: indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: indicates a potentially hazardous situation which, if not avoided, may result in a minor or moderate injury.

NOTE: Indicates a point of particular interest which can afford more efficient operation.

It is important to know that this manual contains various precautions which should be carefully read. It is important to understand that these precautions are not exhaustive. Lantech® Inc. can not possibly know, evaluate, or advise the various trades in all tasks which might be performed. Because of this, Lantech® Inc. has not undertaken such tasks. Accordingly, anyone who installs, trains, operates, or services a Lantech® Inc. Stretch Wrap Machine must first satisfy himself/herself as to the safety of a precautionary procedure.

SAFETY OF OPERATION

Start operation of the machine only after all required housekeeping / maintenance tasks are safely completed.

Ensure the safety of all personnel in the immediate area before starting the machine.

Caution: Cease operation of the machine instantly if any of the following are observed:

- ***unusually noisy operation.***
- ***irregular vibrations.***
- ***current consumption greater than the rated current of motor.***

Determine the cause of the problem and take proper corrective action .

Resumption of operating mode is only permissible if defects and / or damages in the machine have been properly corrected.

EMERGENCY STOP

The machine is supplied with an emergency stop mounted on the electrical control panel.

Before starting the Q-Series machine, you should be acquainted with the emergency stop procedure and the location of the emergency stop pushbutton.

Do not use the emergency stop for unauthorized purposes.

CAUTION: When working on the machine, you should always press the emergency stop and unplug the machine from it's power source.

Figure 1.1-1 E-Stop Pushbutton

GUARDING

All dangerous machine parts (chains, belts, sprockets, etc.) are covered with guarding.

NOTE: If the guards are removed for maintenance or repairs, they must always be replaced to the proper position and secured, before operating the machine.

TOOLS/OBJECTS

Before starting the machine, ensure that all tools and other objects are removed, otherwise damage can occur to the machine or injury to persons in the immediate area of the machine.

ELECTRICITY

Proceed with care when preforming electrical troubleshooting or maintenance on the machine.

Authorized and qualified personnel only may carry out activities on the electrical system, with due observance of the safety requirements.

Improper use of electrical equipment can lead to fatal accidents, serious bodily harm or considerable damage to the system.

During operation of electric motors and / or equipment, certain parts of the equipment will hold a dangerous charge, possibly even when switched off!

Work on electrical equipment should only be carried out by qualified personnel.

Prior to working on any electrical equipment it must be disconnected and grounded by a qualified electrician.

COMPRESSED AIR

Ensure fittings and air hoses are in good condition before using them.

Before disconnecting an air hose, close supply valve and ensure pressure is released

CAUTION: You should never point a compressed air nozzle at anyone. Never use an air hose to blow dust off clothes.

CAUTION: YOU SHOULD NEVER POINT A COMPRESSED AIR NOZZLE AT ANYONE. NEVER USE AN AIR HOSE TO BLOW DUST OFF CLOTHES.

CHANGES / MODIFICATIONS

The manufacturer is not responsible for all modifications and adaptations which can influence the safety of the machine operation.

Those who carry out the modifications or adaptations are fully responsible.

WARNING: BE PREPARED FOR THOSE UNEXPECTED MOVEMENTS !!

HORSEPLAY

Horseplay or frivolous behavior with or in the area of a working Q-Series system can be dangerous and cause injury. Playing is never allowed.

WARNING: WALKING ON GRAVITY CONVEYORS IS ALWAYS STRICTLY FORBIDDEN !!

WALKING ON CONVEYORS

Walking on conveyors, if this machine is so equipped, while the system is running, is strictly forbidden, conveyors can start moving unexpectedly.

Warning: Walking on gravity conveyors is always strictly forbidden !!

INTENDED PURPOSE OF MACHINE

The intended purpose of this machine is to unitize for additional handling, stable, non-hazardous product with stretch material to contain the product.

This machine is not intended for use to unitize hazardous materials or be operated in a hazardous or explosive environment.

1.1 WARRANTY

Seller warrants the products manufactured by it, and sold pursuant to this contract to be free from defects in material and workmanship for a period of three years from delivery date, and under normal use and service. Seller neither assumes nor authorizes any person to assume for it any obligation in connection with sale of seller's equipment. This warranty shall not apply to any other equipment which has been repaired or altered by unauthorized personnel in any way so as to, in the judgment of Seller, affect serviceability, or which has been subject to misuse, negligence, accident, or to equipment made by Seller which has been operated in a manner contrary to Seller's instructions.

"EXCEPT TO THE EXTENT WARRANTED ABOVE, SELLER MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER WITH RESPECT TO THE EQUIPMENT AND/OR GOODS CONTRACTED HEREBY, EXPRESS, OR IMPLIED; AND ALL IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE WHICH EXCEED THE AFFORESTATED OBLIGATION ARE HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM THE AGREEMENT. BUYER'S EXCLUSIVE REMEDY FOR CLAIMS ARISING HEREUNDER SHALL BE FOR DAMAGES. SELLER'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES TO BUYER RESULTING FROM ANY CAUSE WHATSOEVER INCLUDING SELLER'S NEGLIGENCE, ALLEGED DAMAGES OR DEFECTIVE EQUIPMENT IRRESPECTIVE OF WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PARTICULAR EQUIPMENT WITH RESPECT TO WHICH LOSSES OR DAMAGES ARE CLAIMED, OR AT THE ELECTION OF THE SELLER, THE REPAIR OR REPLACEMENT OF DEFECTIVE OR DAMAGED EQUIPMENT, F.O.B. SELLER'S POINT OF SHIPMENT. IN NO EVENT SHALL SELLER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES."

GETTING HELP

IF YOU ENCOUNTER PROBLEMS DURING THE INITIAL START-UP OR AFTER THE MACHINE HAS BEEN IN USE, YOU MAY WANT TO UTILIZE THE SUPPLIED DIAGNOSTICS BEFORE YOU CONTACT A LANTECH REPRESENTATIVE. IF THE PROBLEM PERSISTS, CONTACT YOUR LOCAL LANTECH DISTRIBUTOR OR TECHNICAL SERVICES GROUP.

TELEPHONE AND MAIL SUPPORT

If problems occur and cannot be solved with diagnostics or supplied documentation, you may obtain assistance by phone or mail:

Lantech Inc.
Technical Services Group
Phone: 1-800-866-0322
Fax: 502.267.8864

Lantech Inc.
11000 Bluegrass Parkway
Louisville, KY 40299
Attention: Technical Services Group

2.0 MACHINE DESCRIPTION & INFORMATION

2.1 MACHINE LAYOUT

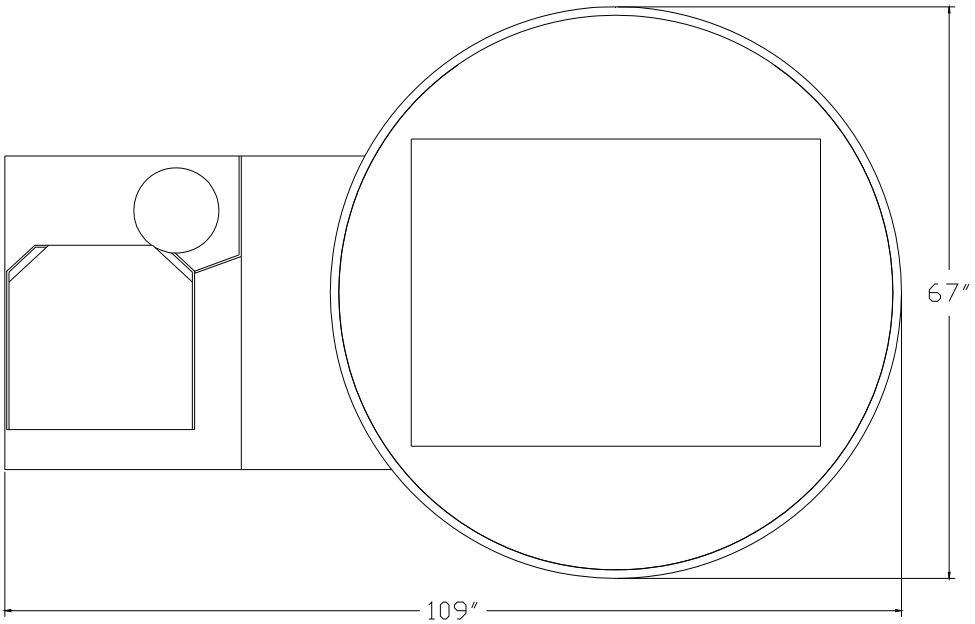


Figure 2.1-1
Typical Q-Semi Floorplan

CAUTION: THE AREA OF THE FLOOR WHERE THE Q-SERIES MACHINE IS TO BE PLACED MUST BE FLAT, AS INDICATED BY AN APPROPRIATE LENGTH STRAIGHTEDGE TO WITHIN 1/4" OVERALL. IMPROPER FLATNESS WILL CAUSE DIFFICULTY WITH TURNTABLE ROTATION WHEN LOADED AND MAY ALSO RESULT IN MACHINE DAMAGE.

2.2 TECHNICAL SPECIFICATIONS

PRODUCTION SPEED

Spiral: ..... 35 loads per hour

LOAD HANDLING SYSTEM

Maximum Load Weight: ..... 4,000 lbs.
Maximum Load Size: ..... 52"L x 52"W x 80"H
Turntable Drive: ..... 3/4 HP DC Motor 1-12 RPM, Variable Speed
Turntable Height: ..... 2 3/4"
Turntable Size: ..... 65" Diameter
Turntable Construction: ..... 1/4" steel plate
Base Construction: ..... Structual & Formed steel
Upright Fabrication: ..... Structual & Formed steel
Upright Safety Covers: ..... ABS material

FILM DELIVERY SYSTEM

Spiral: ..... Power Roller Stretch® Film Delivery
Stretch Capacity: ..... 200% (std)
100% - 300% (opt)
Film: ..... All commercial stretch films
Film Capacity: ..... 10" diameter roll
20" web width (std)
30" web width (optional)

FILM ELEVATOR

Variable speed belt driven film roll carriage
1/5 HP (90VDC) variable speed drive
1/3 HP (90VDC) variable speed drive on 30" roll carriage
Photocell Load Height Sensing

CONSOLE DATA

Top & Bottom Solid State Wrap Counts
Turntable Jog High & Home Controls
Home Control (Turntable and Roll Carriage)
Roll Carriage Jog Up/Down Control
Wrapping Force Control
Banding
Film Assist Control

2.2 TECHNICAL SPECIFICATIONS

ELECTRICAL DATA

115 volt / 20 amp / 60 hz / single phase **(20 amp receptacle required)**
Micro-Controller Logic

MACHINE SIZE

105"L x 67"W x 93"H (std)
105"L x 154"W x 93"H (opt Dual Turntable)
Shipping weight - 1580 lbs.

OPTIONS

Dual Turntable
30" Power Roller-Stretch® Roll Carriage
Loading Ramp
Load Centering Guides
110" Wrap Height
1 Way Wrap
Cycle Pause
Modular Electric Top Platen

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

2.2 TECHNICAL SPECIFICATIONS

The following section will provide information about the major components that have been assembled to form the Q-Series Lan-Wrapper System. The machine consists of three (3) assemblies: the UPRIGHT, the BASE, and the ROLL CARRIAGE. Diagrams and parts lists for these assemblies are contained in the section of this manual entitled PARTS DIRECTORY.

UPRIGHT ASSEMBLY

The upright or mast is a combination of structural and formed steel construction and ABS material. Steel tubes in the upright serve as guides for the roll carriage during its upward and downward travel. On the side of the upright is the electrical membrane panel.

At the bottom of the upright is the roll carriage drive motor, reducer and drum. This assembly operates the *"lifting belt"* drum. Also at the bottom of the upright assembly is the turntable drive system.

BASE ASSEMBLY

The base assembly is a combination of structural and formed steel construction. It supports the upright and roll carriage assemblies, while providing primary support for the turntable top and your load. The turntable top is a 1/4" inch thick steel plate. The turntable top is secured to a driven pulley. Both of these components are mounted to the base. The pulley is also the turntable rotation mechanism. The base assembly is capable of supporting a 4,000 pound load.

Inside the upright is the turntable drive system. The turntable is driven by a 3/4 HP 90VDC motor, a 40:1 gear reducer, and a V-groove drive belt. This produces a variable rotation speed from one (1) to twelve (12) RPM.

ROLL CARRIAGE ASSEMBLY

The roll carriage is the mechanism which travels the full height of a load, while dispensing "pre-stretched" film to the load. The 300 Series uses the Power Roller Stretch® Film Delivery System. The system maintains precise control of the film force. The carriage is designed to hold a 20" wide roll of film. (30" roll carriage is available).

The roll carriage is raised and lowered by a 1/5 HP 90VDC motor and a 45:1 gear reducer, (1/3HP 90VDC motor and 33:1 gear reducer on 30" roll carriage). The roll carriage supported by a three (3") inch wide industrial strap. The roll carriage is guided by four (4) positioning rollers inside the upright.. By setting the controls at the membrane panel, you can determine the traveling speed of the roll carriage and thus regulate the amount of film overlap and film overwrap.

2.2 TECHNICAL SPECIFICATIONS

POWER ROLLER STRETCH® FILM DELIVERY

The Power Roller Stretch® Film Delivery System maintains a fixed wrapping force to the load. The system is a power-assisted pre-stretch mechanism. The film is pre-stretched prior to its application to the load. The standard percentage of pre-stretched film is 200%. This percentage is achieved by the relationship in the diameters of each stretch roller and the relationship of each gear sprocket. Other pre-stretch ratios are available.

The amount of force applied to the load itself, as the film is being stretched, is known as the WRAPPING FORCE. The wrapping force is constantly controlled and monitored electronically. The desired WRAPPING FORCE is maintained consistently, regardless of turntable speed changes or changes in the film roll diameter.

WRAPPING FORCE is the adjustable potentiometer which determines how much help the Power Roller-Stretch® (PRS) motor gives the load in dispensing the film through the film rollers. The graduation range starts at **LOW** and increases to **HIGH**. This means that as the dial is turned in a clock-wise rotation, the PRS motor gives less help to the load, and therefore increases the force to the load. Sufficient force should be applied in order to unitize the load in a secure fashion but not as to crush the load.

NOTE: A recommended starting position is 12 o'clock.

2.4 MACHINE OPTIONS

Several options are available to you for the Q-Series. A brief description of each is listed in this section of the manual. These options are manufactured as part of the original equipment, and are covered under Lantech Inc. standard warranty terms. When discussing service questions, be sure to indicate any options you have on your machine to the service department. For information on machine options not covered in this section, please contact your Lantech Inc. Distributor Representative.

LOADING RAMP

This option is made available to allow for the loading and unloading of your product by using a pallet jack or hand truck.

110" WRAP HEIGHT

This option is designed to accommodate loads in excess of 80 inches in height and up to 110 inches tall. This feature will greatly increase your stretch wrapping capabilities. This option increases the overall height of the machine to 125 inches.

CYCLE PAUSE

This option allows the wrapping cycle to be interrupted. An operator may wish to interrupt the wrapping cycle in order to add or remove product from the pallet. If you select this option after you have received the machine, we recommend that you contact your local Lantech Inc. Distributor Representative for set-up support.

TOP SHEET WRAP CYCLE

A wrapping mode that allows operators to apply a sheet of film over the load during the wrap cycle. The operator presses the Top Sheet Cycle button and the wrapper applies film from the bottom to the top of the load. The roll carriage moves down the load for a number of seconds (determined by a preset). The operator applies top sheet material and presses the start button. The machine applies top wraps over the edges of the top sheet and completes the wrap cycle, providing a moisture resistant package.

1 - 15 RPM HIGH SPEED WRAPPING OPTION

This option is designed to increase turntable rotational speed improving the rate at which loads may be wrapped.

3.0 INSTALLATION

3.1 PREPARATION FOR INSTALLATION

Floor space requirements for the Q-Series machinery will vary based on the configurations. The information below provides a basic awareness.

There should be a minimum distance of 30" perimeter from the upright to walls of other structures. The minimum ceiling clearance for a Q-Series with an 80" upright is 95", and for a 110" upright it will be 125".

The floor must be able to bear the weight of the machine (approximately. 1580 lbs for a typical Q-Series), plus the rated maximum load weight and a customer determined floor weight bearing safety factor. The floor must also be able to tolerate the stress of the machines's operation. If fork lift trucks operate on the same weight bearing area, then add the weight of the trucks to the weight bearing stress tolerance requirements. The Q-Series machinery can be installed on any type of floor construction that meets the weight-bearing and stress tolerance requirements.

CAUTION: The area of the floor where the Q-Series machine is to be placed must be flat, as indicated by an appropriate length straightedge to within 1/4" overall. Improper flatness will cause difficulty with turntable rotation when loaded and may also result in machine damage.

The electrical service must be identical to the voltage specified on the machine ID decal located inside the upright door adjacent to the membrane panel (see STANDARD SPECIFICATIONS section of this manual). The Q-Series is designed for 115 VAC, 20 AMP, 60 Hz, Single phase service. A consistent voltage power source is crucial to insure proper operation.

NOTE: See Section 2.1 or the electrical schematics for specific requirements for this machine.

NOTE:Line voltage at the machine should not vary more than +/- 10% of the rated supply requirements.

CAUTION: THE AREA OF THE FLOOR WHERE THE Q-SERIES MACHINE IS TO BE PLACED MUST BE FLAT, AS INDICATED BY AN APPROPRIATE LENGTH STRAIGHTEDGE TO WITHIN 1/4" OVERALL. IMPROPER FLATNESS WILL CAUSE DIFFICULTY WITH TURNTABLE ROTATION WHEN LOADED AND MAY ALSO RESULT IN MACHINE DAMAGE.

Typical space requirements for the Q-300 Series

Standard 300 Series: 105 "L x 67" W x 93 "H	Standard 300 Series w/ loading ramp: 164 "L x 67" W x 93 "H
Dual Turntable 300 Series: 105 "L x 154" W x 93 "H	Dual Turntable w/ loading ramp 300 Series: 194 "L x 154" W x 93 "H

3.2 MECHANICAL INSTALLATION

3.2.1 MACHINE SET-UP "A" (MACHINES SHIPPED WITH BASE AND UPRIGHT BOLTED TOGETHER

These set-up instructions are exclusively for the Q-Series machine shipped with the base and upright bolted together. **It is very important to read all instruction before undertaking any of these steps.** The following steps should insure a safe and quick machine set-up.

1. Move the shipping skid, with your machine still secured, near the area where the unit will be set-up and made ready for operation.

2. If present, remove all packing and banding materials. Remove the lag bolts and lagdown clips which are secured to the base of the machine and to the shipping skid. Remove all the boards used to secure machine parts.

3. Carefully remove the machine from the skid. Insert the forks of a forklift truck into the portability loops (tubing at the rear of the base). Be careful not to move into the loops so far as to contact the upright portion of the machine.

4. Move the machine to the installation location. At this time, unbolt the bracket which has secured the roll carriage to the machine base. (Figure 3.2.1-2) Store this bracket in a safe place for use later during maintenance procedures.

5. Open all three (3) upright panels. This is achieved by releasing the latches on the panel doors with a 10 mm hex tool. (1/4 turn latches)

Roll Carriage Shipping Bracket

Figure 3.2.1-2 Roll Carriage Shipping Bracket

Figure 3.2.1-2 Panel Door Latch

CAUTION: AN ADEQUATE, ISOLATED SINGLE PHASE GROUNDED POWER SOURCE IS REQUIRED. CHECK THE ELECTRICAL SCHEMATICS FOR THE SPECIFIC REQUIREMENTS FOR YOUR MACHINE. THE USE OF EXTENSION CORDS OR ANY ALTERATION MAY RESULT IN DAMAGE TO ELECTRICAL CIRCUITS AND/ OR SIGNIFICANT DEVIATION OF MACHINE PERFORMANCE. FAILURE TO COMPLY WITH THIS CAUTION MAY VOID THE MACHINE WARRANTY.

CAUTION: THESE UPRIGHT PANELS MUST BE KEPT CLOSED AT ALL TIMES DURING MACHINE OPERATION. THIS PROVIDES PERSONNEL PROTECTION FROM MECHANICAL AND ELECTRICAL HAZARDS.

6. During shipment, two bolts have been used to secure the roll carriage counterweight. Decals on the roll carriage counterweight remind you that this hardware must be removed. At this time, remove the hardware. Close and latch the upright panels.

7. Visually inspect the machine for any damage that may have occurred during shipping and handling. Verify that the film roper mechanism is not bent or misaligned.

CAUTION: These upright panels must be kept closed at all times during machine operation. This provides personnel protection from mechanical and electrical hazards.

NOTE: The turntable drive belt was tensioned properly from the factory, however in order to insure consistent performance, Lantech recommends that after the machine has wrapped approximately 100 loads that the turntable drive belt be re-tensioned. Refer to "Standard Adjustment Sections" for proper tensioning procedures.

8. Now turn to section 3.3 for instructions concerning electrical installation.

Counterweight Shipping Bolts

Figure 3.2.1-3
Roll Carriage Counterweight Shipping Bolts

3.2.2 MACHINE SET-UP (MACHINES SHIPPED WITH SEPARATED BASE AND UPRIGHT)

These set-up instructions are exclusively for the Q-Series machine shipped with the base and upright separated. **It is very important to read all instruction before undertaking any of these steps.** The following steps should help achieve a safe and quick machine set-up.

1. Move the shipping skid, still with your machine secured, near the area where the unit will be set-up and made ready for operation.

CAUTION: An adequate, isolated power source is required. Check the specifications for you machine. The use of extension cords or any machine alteration may result in damage to electrical circuits and/or significant deviation of machine performance. Failure to comply with this caution may void the machine warranty.

2. If present, remove all packing and banding materials. Remove the lag bolts and lagdown clips which are secured to the base of the machine and to the shipping skid. Remove all the boards used to secure machine parts.

3. Insure that the two 1/2" eyebolts are securely installed in the top of the machine upright. (Eyebolts are shipped with the hardware kit) Route a sling or chain through the eyebolts and secure the sling or chain to the forks of a forklift truck. Using the forklift truck, carefully raise the upright until it stands on its own base. Move the upright near the final location site.

4. Carefully remove the turntable and base from the skid.

5. Move the base near the upright.

DANGER: Use equipment capable of supporting the upright. During removal and replacement, all unauthorized personnel must stay clear of the upright. If inadequately supported, the upright could fall and cause severe personnel injury.

DANGER: USE EQUIPMENT CAPABLE OF SUPPORTING THE UPRIGHT. DURING REMOVAL AND REPLACEMENT, ALL UNAUTHORIZED PERSONNEL MUST STAY CLEAR OF THE UPRIGHT. IF INADEQUATELY SUPPORTED, THE UPRIGHT COULD FALL AND CAUSE SEVERE PERSONNEL INJURY.

CAUTION: CARE SHOULD BE TAKEN WHEN MOVING THE BASE AND UPRIGHT TOGETHER. THERE ARE CABLES AND CONNECTORS THAT SHOULD BE MONITORED TO PREVENT DAMAGE. FIGURE 3.2.2-2

6. Loosen and remove the 4 flat head screws (Screws closest to the center of the table). Figure 3 (Locations circled). These are 8-16 mm screws and may be removed using a 5mm hex wrench.

   Remove the turntable top by inserting the two 3/8" eyebolts in the threaded holes on the turntable top. Route a sling or chain through the eyebolts and secure the sling or chain to the forks of the forklift truck.

7. Remove the turntable top. This will allow access to the drive ring and drive belt. Bring the turntable base together with the upright.

8. Remove the tensioner cover plate located at the base of the upright.

9. Remove the bolts on each side of the upright base and temporarily set aside. Using the hex head and flat head bolts provided, secure the turntable base to the upright base.

10. Slide the turntable base toward the upright until all clearance holes are aligned with all the tapped holes in the side of the upright base.

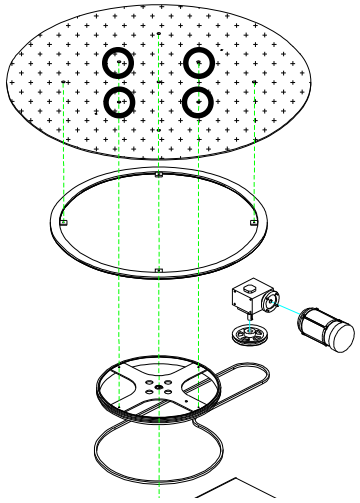


Figure 3.2.2-1 Turntable top and drive components

CAUTION: Care should be taken when moving the base and upright together. There are cables and connectors that should be monitored to prevent damage. Figure 3.2.2-2

11. Connect the cable connectors for the proximity switch. The cable and switch are identified with matching tags labeled PLS-1.

Figure 3.2.2-2 Drive Belt, Tensioner, and Electrical Cables

12. Using the hex-head bolts previously removed from the base and flat head bolts provided, secure the turntable base to the upright base.

In order to install the turntable drive belt on the motor drive pulley, the upright must be raised up and blocked in position.

13. Raise the upright at the left rear corner (as viewed from the center of the turntable) approximately 2" and place suitable blocking material under the base to provide support while installing the drive belt. Position the belt over the motor drive pulley, then seat the belt into the notch on the drive ring.

14. Rotate the jackscrew nut to apply tension on the belt. Proper tension is achieved when the turntable will start and stop without the belt slipping. After wrapping 3 - 5 loads the belt should be re-tensioned.

15. Replace the turntable top. Remove the sling from the turntable top and upright. Remove the eyebolts from the turntable top.

16. During shipment, two bolts have been used to secure the roll carriage counterweight. Decals on the roll carriage counterweight remind you that this hardware must be removed. At this time, remove this hardware. Close and latch the upright panels.

CAUTION: The upright panel doors must be kept closed at all times during machine operation. This provides personnel protection from mechanical and electrical hazards.

17. At this time, remove the shipping bracket used to secure the roll carriage to the machine base. Store this bracket and the counterweight shipping bolts in a safe place for possible use later during maintenance procedures or when moving the machine.

18. Visually inspect the machine for any damage that may have occurred during handling. Verify that the roper mechanism is not bent or misaligned.

19. Move the machine to the final operating position.

You are now ready to go to the Section 3.3 labeled Electrical Installation.

Counterweight Shipping Bolts

Figure 3.2.2-6
Roll Carriage Counterweight Shipping Bolts

NOTE: IN ORDER TO INSURE CONSISTENT PERFORMANCE, LANTECH RECOMMENDS THAT AFTER THE MACHINE HAS WRAPPED APPROXIMATELY 100 LOADS THAT THE TURNTABLE DRIVE BELT BE RE-TENSIONED. REFER TO "STANDARD ADJUSTMENT SECTIONS" FOR PROPER TENSIONING PROCEDURES.

3.3 ELECTRICAL INSTALLATION

CAUTION: A DEDICATED, 115 VAC, 20 AMP, 60 HZ, SINGLE PHASE GROUNDED POWER SOURCE IS REQUIRED. DO NOT USE EXTENSION CORDS. ANY ALTERATION MAY RESULT IN DAMAGE TO ELECTRICAL CIRCUITS AND/ OR SIGNIFICANT DEVIATION OF MACHINE PERFORMANCE. FAILURE TO COMPLY WITH THIS CAUTION MAY VOID THE MACHINE WARRANTY.

The machine is equipped with a ten foot power cord. There must be a 115 VAC, 20 AMP, 60 Hz, Single phase service outlet close by so that power is available to the machine. It is important that the machine and outlet are no more than 10' apart.

Figure 3.2.3-1 20 Amp Receptacle and Plug

CAUTION: A dedicated, 115 VAC, 20 AMP, 60 Hz, Single phase grounded power source is required. DO NOT use extension cords. Any alteration may result in damage to electrical circuits and/or significant deviation of machine performance. Failure to comply with this caution may void the machine warranty.

NOTE: If further installation of options are not required, you are now ready to load a roll of film and begin operating the machine. See section 2 of this manual for further operator instructions.

3.4 OPTIONAL FEATURES INSTALLATION

3.4.1 MODULAR ELECTRIC TOP PLATEN

A Modular Electric Top Platen (METP) can be used to stabilize light or tall loads during the stretch wrapping cycle. This feature will provide the security that the product will not separate or fall from the pallet during rotation. The platen arm extends from the upright portion of the METP and “HOLDS” the load while the stretch wrapping cycle in being performed. An METP has a fifty-five inch (55") operating range.

These set-up instructions for an METP are based on the assumption that it was assembled and tested at the factory. If you select this option after you have received the machine, we recommend that you contact your local Lantech Inc. Distributor Representative for set-up support. An METP consists of four (4) major components: the top platen frame and pad assembly, the platen arm assembly, the platen mast or upright, and the mounting base. These instructions are based on the basic MACHINE SET-UP having been completed.

WARNING: Use material handling equipment capable of supporting the top platen. During installation, unauthorized personnel must stay clear of the top platen. Otherwise, severe personal injury may occur.

1. Move the shipping skid near the area where the Q-Series is located. Remove all packing and banding materials. Remove any lag-down clips, wooden boards or blocks which are secured to the METP.

2. Remove the METP base and move into place near the Q-Series machine.

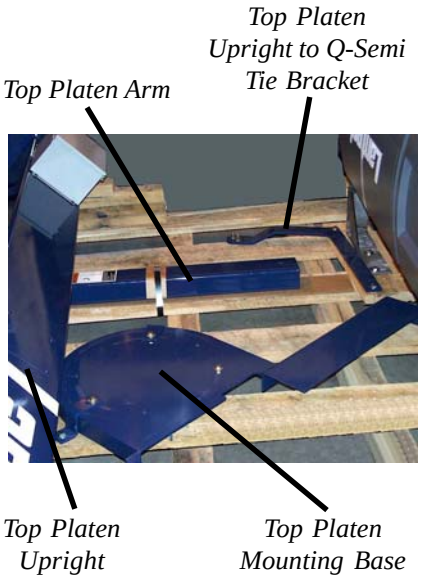


Figure 3.4.1-1 METP Components

3. On the side of the Q-Series base is one mounting hole and an existing base connection bolt, and at the base of the METP there are a pair of thru-holes. Using a 13 mm wrench, remove the existing mounting bolt on the base near the turntable skirt (see picture below) position the METP base in order to align the mounting holes. Using one enclosed bolt and the existing mounting bolt, secure the METP base to the Q-Series base.

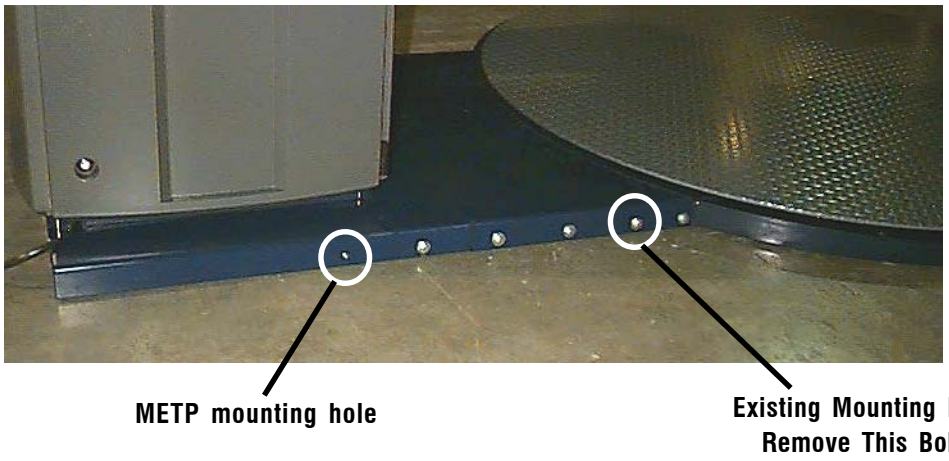


Figure 3.4.1-2 METP Components

4. Secure a chain hook into the eyelet mounted at the drive assembly atop the METP upright. Secure the other end of the chain to the forks of a forklift truck. Carefully begin to lift the upright.

5. Raise the METP upright and set in place on the METP base. The mounting holes in the base of the upright will match the circular slots in the upright. Use the 3/8-16 bolts to secure the upright to the base. Leave the mounting bolts just finger-tight at this point.

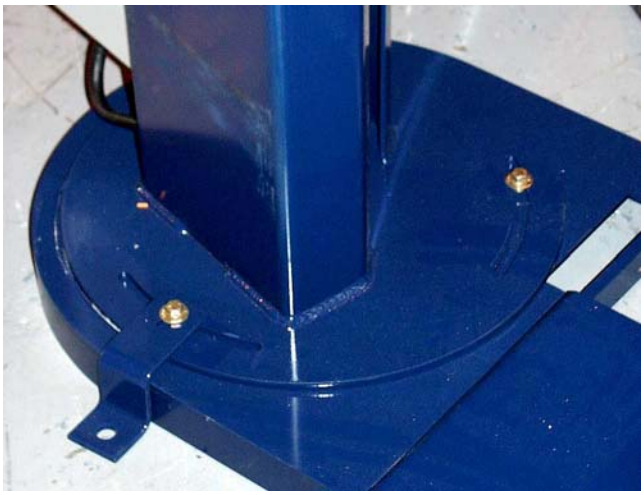
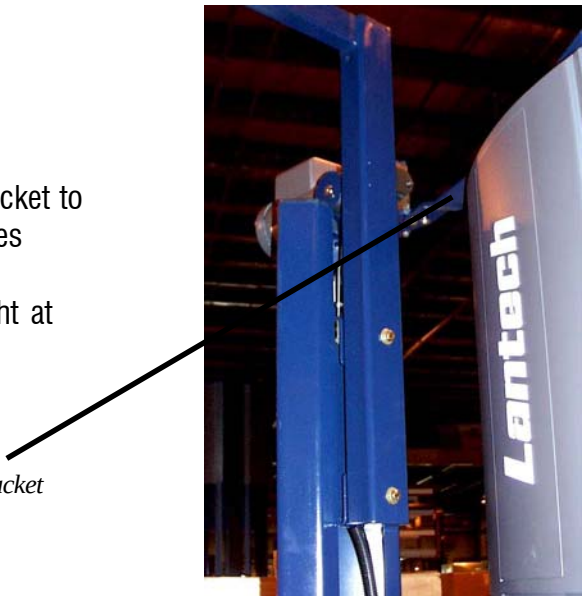


Figure 3.4.1-3 METP Base and Upright

6. Attach the METP stablizer bracket to the METP upright and Q-Series machine upright. Leave the mounting bolts just finger-tight at this point.

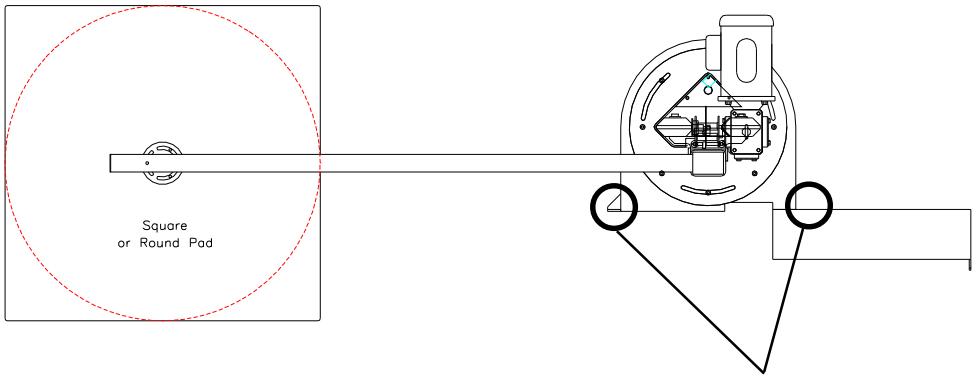


Stablizer Bracket

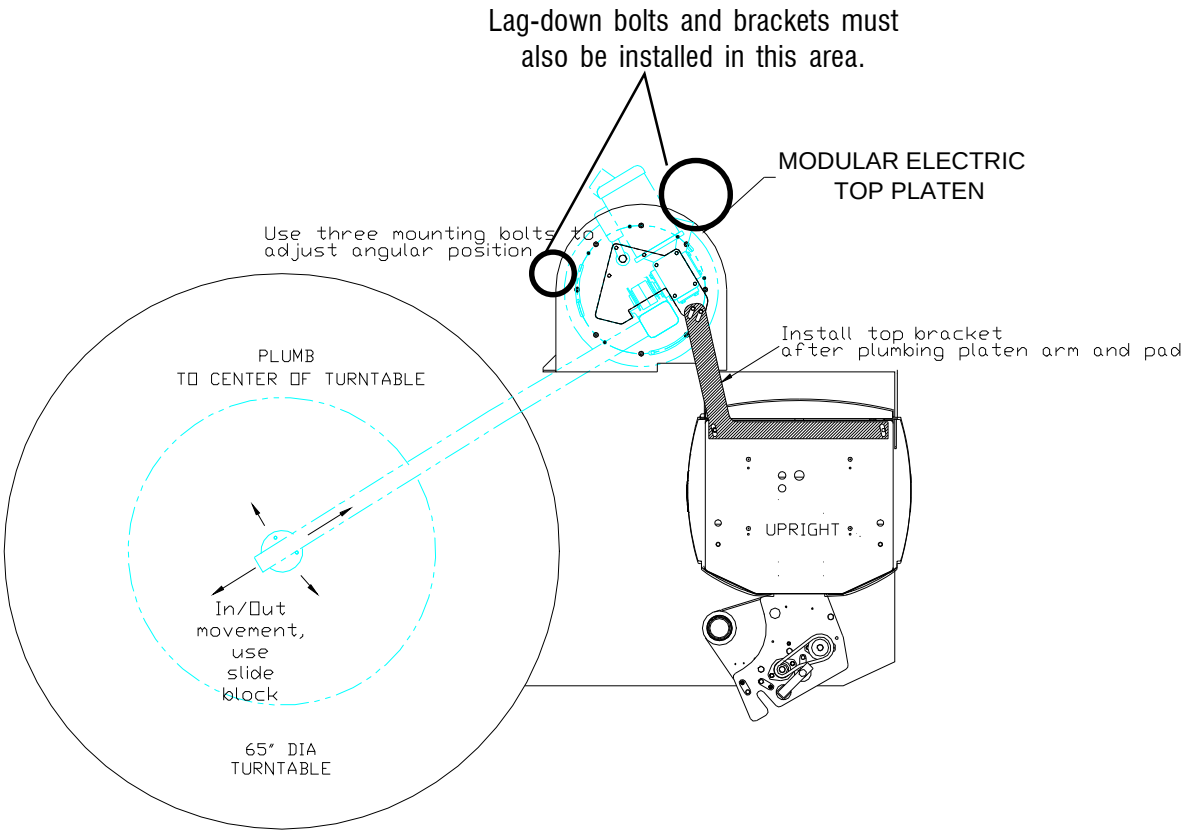
Figure 3.4.1-4 METP Arm Installed

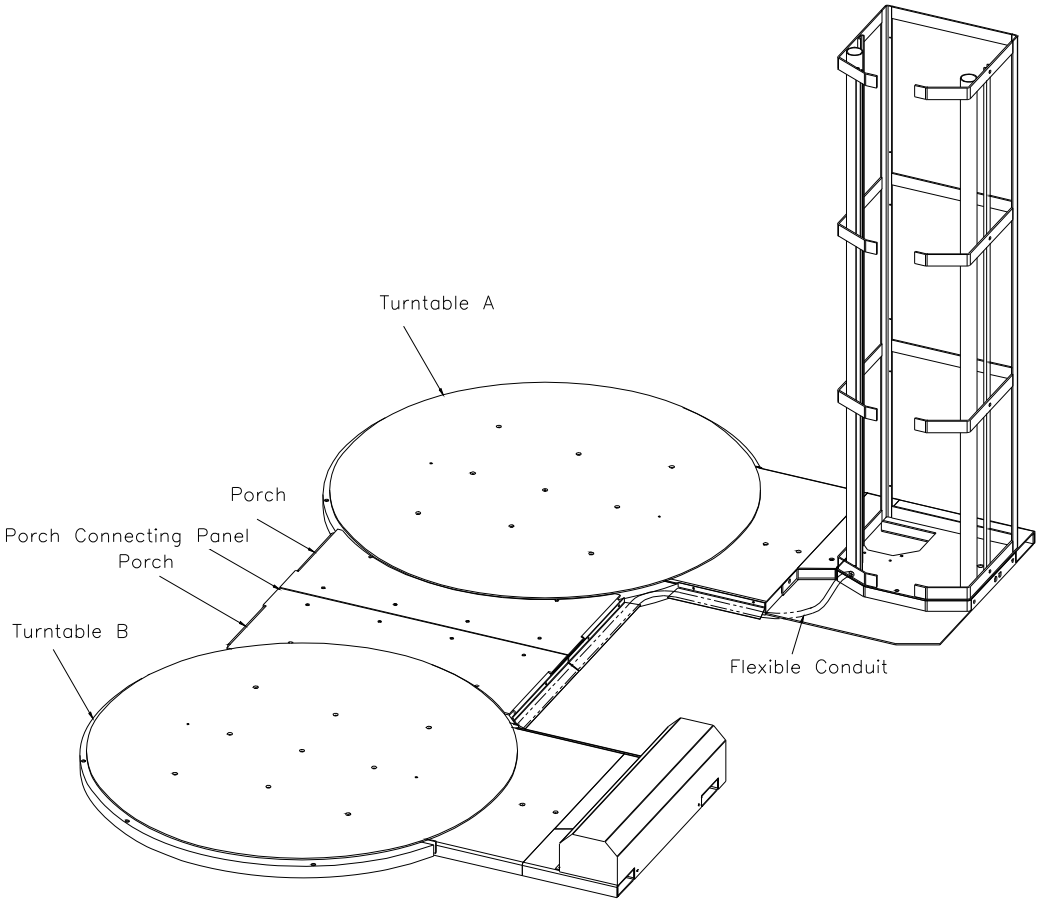
7. Mount the METP arm to the METP carriage assembly. Use the 1/2-13 bolts to attach the arm to the carriage. Insure that the arm is positioned correctly.

8. Use a level to plumb the METP upright. After plumbing, secure the bolts in the base and stablizer bracket.



Install the mounting bolts securing the METP to the machine base. Mounting bolts will be installed in this area.





Dual Turntable Layout

3.4.2 DUAL TURNTABLE SETUP

These set-up instructions are exclusively for the Q-Series machine with the optional dual turntable. It is very important to read all instruction before undertaking any of these steps. The following steps should help achieve a safe and quick machine set-up.

NOTE: If this is a machine shipped with the base and upright bolted together, insure that the installation procedures have been completed through step #7.

If this is a machine shipped with separated base and upright, insure that the installation procedures have been completed through step #19.

1. Carefully remove the turntable and porch assemblies from the skid. This is performed by inserting the forks of a forklift truck into the portability loops (tubing at the rear of the base). Move the turntable base to the installation location.

2. Using the illustration on facing page, position and assemble the porches and turntable.

3. Route the flexible conduit per the illustration and into the upright. Wire to appropriate terminal points per the electrical schematic.

NOTE: The turntables are referred to as turntable A and Turntable B. Turntable A is the turntable supplied as part of the complete machine and upright. Turntable B is the additional or extended position turntable.

4. Install the conduit clamps and check to insure that all fasteners are secure.

5. Return to the appropriate MACHINE SET-UP section (80" or 110") to complete the installation procedure.

4.0 OPERATOR INSTRUCTIONS

4.1 APPLYING ELECTRICAL POWER

The Q-Series is connected to the power source by a power cord and receptacle. The plug also provides the means of disconnecting the machine from the electrical power for maintenance or service.

4.1.1 TURNING ON AND OFF THE MACHINE.

When the power cord is connected to an energized receptacle, the machine is ON and ready for operation.

Any time the machine is not running, the power cord may be disconnected from the receptacle

4.2 LOADING THE TURNTABLE

The standard machine is designed to be loaded or unloaded with a forklift truck. A load ramp option is available for use with a pallet jack or hand truck. However, the turntable can not support the weight of a forklift truck and continue to operate efficiently or trouble free. Use of any devices other than a pallet jack, hand truck, or forklift truck for loading and unloading, is considered "**MISUSE**" under the terms of our warranty policy, as stated in this manual.

As it is difficult to define a device completely to cover all areas of material handling equipment, we chose to state the total weight capacity of the turntable to include the loading device along with the weight of the load itself. The turntable bearing weight capacity of the Q-Series 300 is 4,000 lbs.

CAUTION:
Do not maneuver a forklift truck onto the turntable unless the machine has drive through capability. (Requires 5,000 pound turntable option and two ramps) . Do not run the forks of a forklift truck between the turntable top and the machine base.

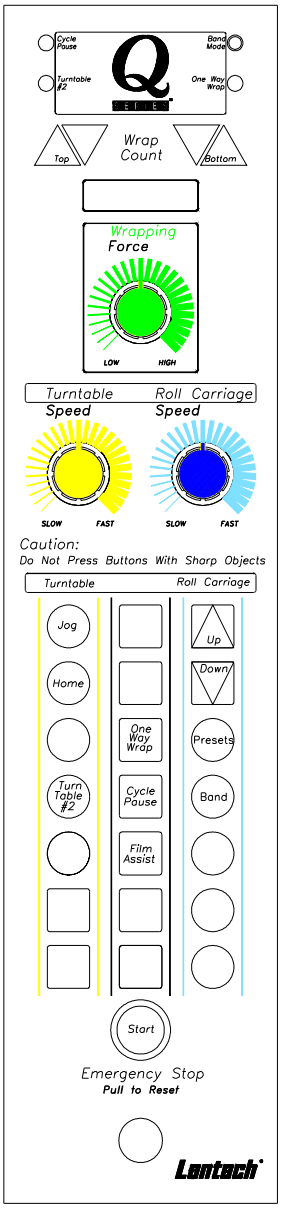
CAUTION:
Using loading devices against recommendation can void the warranty. Never attempt to move the machine with a load on the turntable.

CAUTION: DO NOT MANEUVER A FORKLIFT TRUCK ONTO THE TURNTABLE UNLESS THE MACHINE HAS DRIVE THROUGH CAPABILITY. (REQUIRES 5,000 POUND TURNTABLE OPTION AND TWO RAMPS) DO NOT RUN THE FORKS OF A FORKLIFT TRUCK BETWEEN THE TURNTABLE TOP AND THE MACHINE BASE.

4.3 MEMBRANE PANEL CONTROLS

The membrane panel is located on the upright assembly. The functions are clearly identified for ease of use. Read thoroughly the following information to familiarize yourself with these controls, and how each one relates to operation and performance of the Q-Series 300.

NOTE: The membrane panel is shown with option inserts installed. Only those inserts that apply to options purchased will be installed on a specific machine.



Mode Indicators

These indicators are located at the top of the membrane panel. When illuminated, these LEDs indicate the machine mode of operation. The available modes of operation are labeled next to the appropriate LED.

Wrap Count Top

Using this button allows the operator to determine the number of layers of film to be applied at the top of the load.

Wrap Count Bottom

Using this button allows the operator to determine the number of layers of film to be applied at the bottom of the load.

4.3 MEMBRANE PANEL CONTROLS CONTINUED

The next group of functions are the **TURNTABLE SPEED** and **ROLL CARRIAGE SPEED** controls. Each control has a graduation range from SLOW to FAST. This means that as the controls are turned in a clockwise direction the speeds will increase.

Wrapping Force

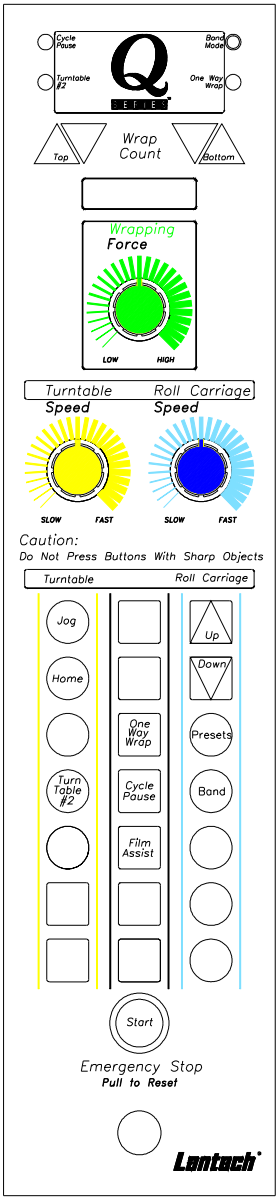
This control provides a means for the operator to vary the force that the film applies to the load during the wrap cycle. By rotating the control clockwise the force to the load is increased. The proper force to the load is the force that will keep the load unitized without crushing or damaging the load.

Turntable Speed

This control allows the operator to adjust the normal wrapping speed of the turntable.

Roll Carriage speed

This control allows the operator to adjust the up and down speed and by doing so, determine the amount each layer of film overlaps the preceding layer.

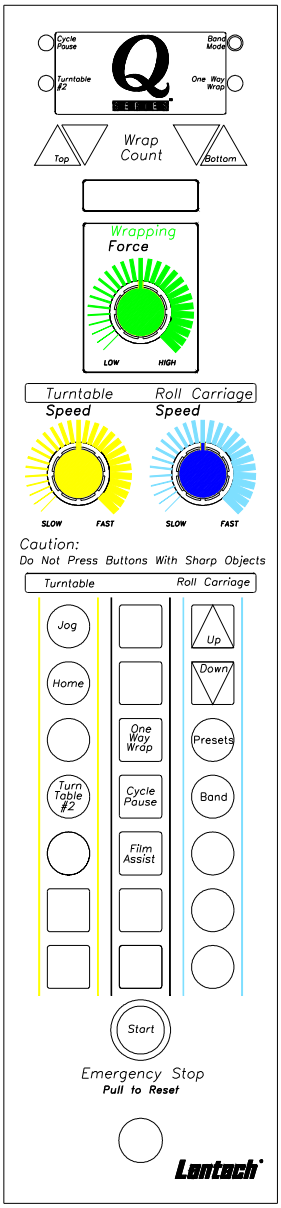


4.3 MEMBRANE PANEL CONTROLS CONTINUED

Directly below the **TURNTABLE SPEED** control are two (2) yellow membrane-pads. These pushbuttons are momentary contact, spring loaded contacts. A metallic dome is positioned under each pad. When these pads are pressed, the dome compresses and the circuit is closed. When released, the dome returns to its original shape, opening the circuit.

JOG

While the pushbutton is held in, the turntable will rotate. Once the pushbutton is released, the turntable will stop.



HOME

Once the pushbutton is pressed and released, the turntable and roll carriage will return to "home" or the starting position.

Directly below the **ROLL CARRIAGE SPEED** controls are two (2) blue pushbuttons.

UP

While the pushbutton is held in, the roll carriage will ascend.

DOWN

While the pushbutton is held in, the roll carriage will descend.

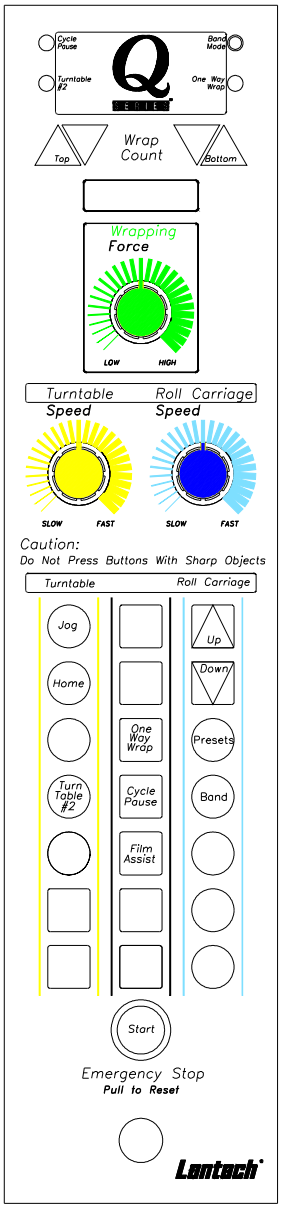
4.3 MEMBRANE PANEL CONTROLS CONTINUED

Presets

Pressing this button will allow access to equipment presets. These presets are discussed in detail on the next page.

Banding

During normal wrap mode, press this pushbutton after the film delivery system has reached the desired band placement. The film delivery system will stop and remain stationary until either the banding mode wrap count has counted out or the banding mode pushbutton has been pressed again. The film delivery system will now continue traveling in the same direction when the banding mode was initially selected. This will result in a "band" or pre-set number of wraps ("P4", see Presets) being placed on the load.



4.3 MEMBRANE PANEL CONTROLS CONTINUED

Setting Presets

Various timer and counter functions are provided in the micro-controller to allow flexibility in determining the best operation of the machine. These timer/ counter functions allow the machine to be "fine tuned" for optimum performance. The Preset identification number, function and default value is shown in the list below.

To access and alter the preset values, power must be applied to the machine, but the machine should not be in a wrap cycle.

Enter the preset set-up mode by pressing the pushbutton labeled **Presets** located directly below the **Roll Carriage Down** pushbutton.

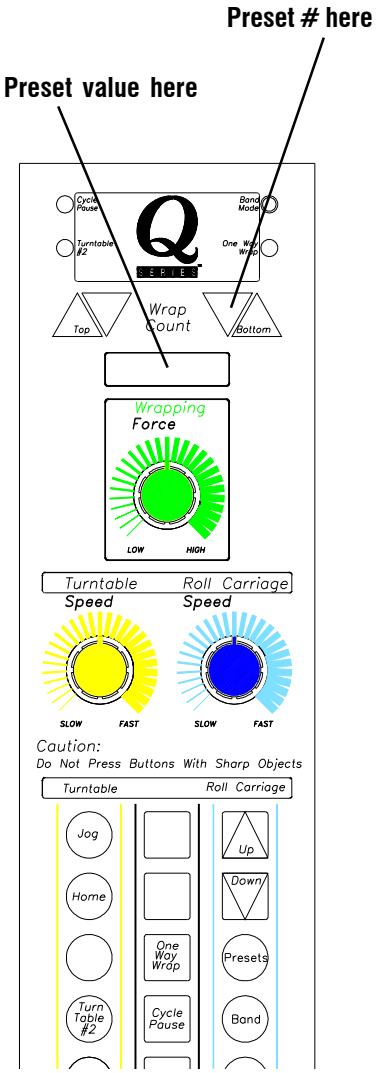
Individual presets may be selected by pressing the **Bottom Wrap Count** pushbutton. The actual preset value may be changed by pressing the **Roll Carriage Up** selection to increase the preset value and **Roll Carriage Down** to decrease the preset value.

Preset Displays

The "**P**" or preset function number is displayed in the **Bottom Wrap Count** display window. The desired preset, **P1** thru **P8** may be accessed by pressing the **Bottom Wrap Count** button until the appropriate P number is displayed.

The actual preset value is displayed in the window directly below the label "**Wrap Count**". The preset value may then be increased by pressing the **Roll Carriage Up** button or decreased by pressing the **Roll Carriage Down** button.

Exit the Setup mode by again pressing the pushbutton labeled **Presets**.



Preset #	Function	Default Preset Value
P1	Amount of film overwrap on the top of the load	1.5 Sec
P2	Reduced Wrapping Force at start of cycle	3.0 Sec
P3	Amount of time after the turntable starts before the roll carriage move up	3.0 Sec
P4	Number of bands put on the load when BAND mode pushbutton is pressed	4 Cts
P5	Auto Film Cut-off Delay after decel delay if Auto Film Cut-off is enabled.	3 Sec
P6	Delay for PRS to shut off after hole is punched.	4 Sec
P7	Dual Turntable #2 - Same as P5 except on Turntable #2	2 Sec
P8	Dual Turntable #2 - Same as P6 except on Turntable #2	5 Sec

4.3 MEMBRANE PANEL CONTROLS CONTINUED

Restoring Preset Default Values

1. This function is not available while wrapping product.

2. Place the machine in the Preset Mode by pressing the Presets membrane button.

3. Press and hold the Start pushbutton.

4. While holding the Start pushbutton, press the Top Wrap Count pushbutton.

5. Release both the Top Wrap Count and Start pushbuttons.

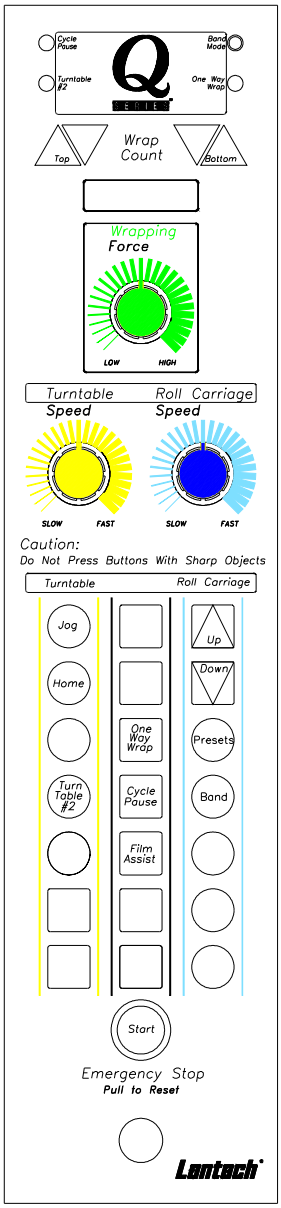
6. After 2 seconds, the machine will automatically return to the operating mode.

4.3 MEMBRANE PANEL CONTROLS CONTINUED

The next group of functions, located in the center of the membrane control panel, are the mode selection pushbuttons. These pushbuttons provide access to optional operating modes.

One Way Wrap

Pressing this membrane pad before pressing the **Start** pushbutton will cause the bottom wraps to be applied first, the film delivery system will then raise to the top of the load, the top wraps will be applied and the wrap cycle will stop. To return the film delivery system to the "home" position, press and release the **Roll Carriage Down** jog membrane pad.



Cycle Pause

Pressing this membrane pad interrupts the machine cycle so that the operator may perform a required task. This may be applying a label, corner boards, top cap, etc. Pressing this selection again will resume normal wrap mode.

Film Assist

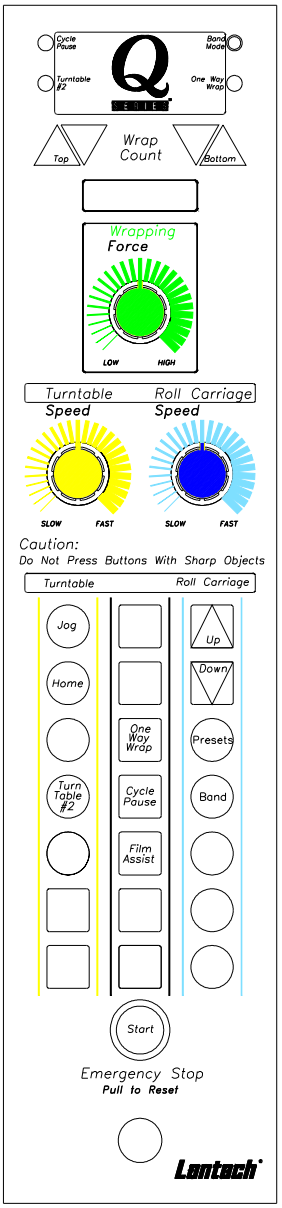
Included with powered pre-stretch film delivery system. Pressing this membrane pad will allow the film to be pulled out of the film delivery system much easier. This is helpful when pulling out a sufficient length of film to attach to the load prior to beginning a wrap sequence.

4.3 MEMBRANE PANEL CONTROLS CONTINUED

The last two control functions are the **START** and the **EMERGENCY STOP**. These controls provide a means of starting the machine and an E-Stop function for emergency shutdown of the equipment.

The **START** pushbutton is green in appearance. When pressed, the machine will begin a wrap cycle.

The **EMERGENCY STOP** is a red, mushroom shaped button. It must be pulled out, or "reset", in order to activate the devices on the membrane panel. When pushed in, the membrane panel devices can not be activated. No machine function can be performed as long as the **EMERGENCY STOP** pushbutton is depressed.



4.4 TYPICAL SEQUENCE OF OPERATION

With power applied to the machine, the forktruck driver delivers a load and places it on the turntable. After centering the load on the turntable, the driver backs the forktruck away until the forks clear the load and the machine.

The driver then gets off the forktruck, pulls out a length of film sufficient to reach the load and tucks the film between the load and the turntable or between the layers of the load. The driver then presses the Start pushbutton on the membrane panel.

As the turntable begins to rotate, the Power Roller-Stretch® is energized and begins to dispense film to the load with a reduced wrapping force. After a preset time delay, the roll carriage raises allowing the film to spiral around the load and at the same time switching to the normal wrap force. The speed at which the roll carriage raises determines the amount the film overlaps the preceding layer and the overall number of layers of film on the middle of the load.

When the roll carriage reaches the top of the load the load height sensor detects the top of the load and signals the roll carriage to stop. The roll carriage may also stop when the upper limit switch is actuated before the load height sensor detects the top of the load.

After the roll carriage has stopped at the top of the load, film is applied to the top of the load until the number of “Top Count” revolutions have been completed. The roll carriage then moves downward again spiral wrapping the load.

When the roll carriage reaches the lower limit switch, the roll carriage stops. Once the number of wraps selected by the “Bottom Count” has been satisfied, the turntable begins to “decel” and move toward the home position at a slow or “homing speed”.

The cycle is completed when the turntable stops at the “home” or starting position. The forktruck driver then cuts or tears the film at the load and wipes down the remaining tail of film against the load. The Top and Bottom Counters are reset and the machine is now ready to be unloaded in preparation for the next load.

4.5 MACHINE OPERATION

4.5.1 INITIAL START-UP PROCEDURE

CAUTION: VERIFY THAT THE ROLL CARRIAGE SHIPPING HARDWARE AND THE COUNTERWEIGHT BOLTS HAVE BEEN REMOVED. OTHERWISE DAMAGE TO THE MACHINE MAY OCCUR. (SEE INSTALLATION INSTRUCTIONS IN THIS MANUAL)

Read thoroughly and follow these steps regarding operation of your machine.

1. Plug in the power cord to a 115 volt / 20 amp / 60 Hz / single phase grounded outlet.

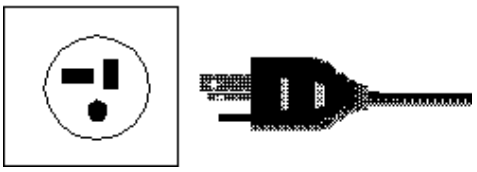


Figure 3.2.3-1 20 Amp Receptacle and Plug

2. Pull out the red EMERGENCY STOP button located at the bottom of the membrane panel.

3. Set both the top and bottom WRAP COUNTS to the desired number of wraps. If uncertain, a good starting point is two (2) wraps for each counter.

4. At the membrane panel rotate the blue ROLL CARRIAGE SPEED control to the 12 o'clock position. At the membrane panel rotate the yellow TURNTABLE SPEED control to your desired RPM. These controls can be independently adjusted based on your wrapping requirements.

CAUTION. Verify that the roll carriage shipping hardware and the counterweight bolts have been removed. Otherwise damage to the machine may occur. (See Installation Instructions in this manual)

Figure 3.2.3-1 20 Amp Receptacle and Plug

4.5.1 INITIAL START-UP PROCEDURE CONTINUED

NOTE: At the TURNTABLE SPEED controls, SLOW equals approximately 2 RPM and FAST equals 12 RPM.

5. At the membrane panel, press and hold the blue roll carriage UP pushbutton. This will manually run the roll carriage up. Allow the roll carriage to ascend toward its uppermost limit. Once the carriage is at the top of the upright, press and hold the blue roll carriage DOWN pushbutton. This will allow the roll carriage to descend, and return to the bottom of the upright or its starting position.

6. At the membrane panel, press and hold in the yellow turntable JOG pushbutton. This will manually rotate the turntable. Allow the turntable to make at least one (1) full revolution then release the turntable JOG pushbutton and the turntable will stop.

7. At the membrane panel, press and release the yellow turntable HOME pushbutton. This will automatically return the turntable to the home position at approximately two (2) RPM. Once the turntable stops, it will be in the home or starting position. The roll carriage will also return to the home position if necessary.

8. Test wrap a product load following the normal machine operation procedures to verify wrapping performance.

4.5 MACHINE OPERATION CONTINUED

FILM LOADING

1. Press in the red EMERGENCY STOP mushroom pushbutton. This will disable the control power to the machine and to the film delivery system.

WARNING: Always press in the EMERGENCY STOP pushbutton before working with the film delivery system. Failure to do so, may result in severe injury to fingers or hands trapped between moving parts.

2. Place a roll of film on the film post and thread the film through the film delivery system as shown in the illustration.

3. While standing in front of the roll carriage, grab the release latch and push it to the right. This will allow the E-Z THREAD® gate portion of the roll carriage assembly to open and pivot away from the stretch rollers.

4. Pull out about six (6) feet of film and rope it. Pass the roped film around the small stretch roller (RS1). With the left hand, loosely hold onto the film (allow some slack to be in the film).

5. With the right hand, close the E-Z THREAD® gate portion of the roll carriage assembly

6. While holding the roped film, pull out the red EMERGENCY STOP and press the FILM ASSIST pushbutton located on the membrane panel. Pull out a sufficient amount of film through the film delivery system to insure proper operation. This will remove any slack film that may have occurred during the film loading process.

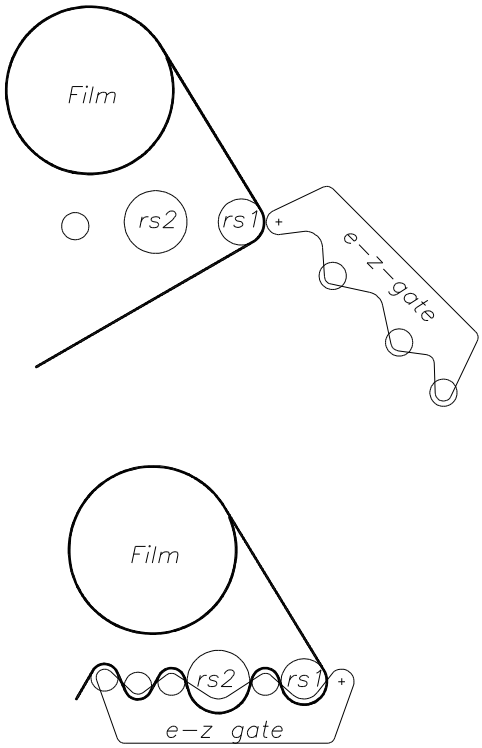


Figure 3.2.3-1 20 Amp Receptacle and Plug

4.5 MACHINE OPERATION CONTINUED

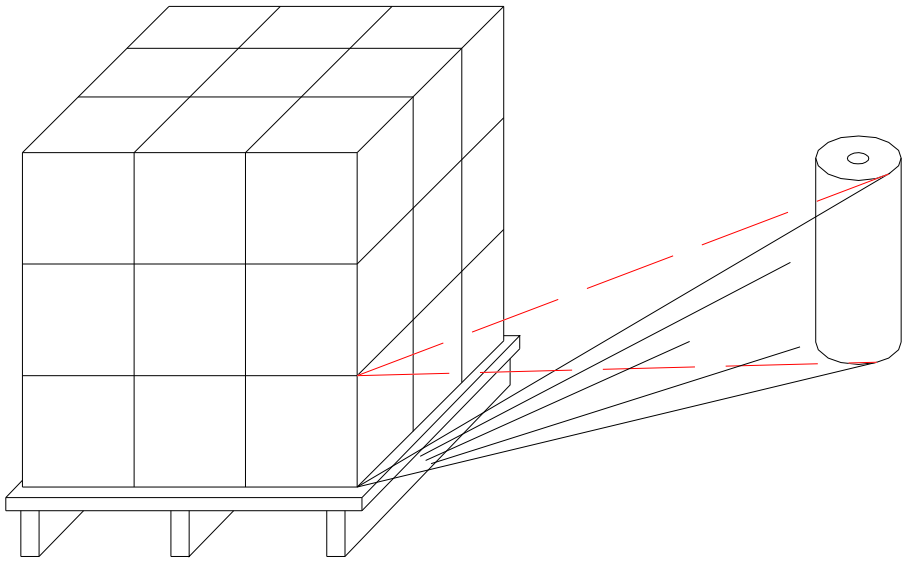
NORMAL OPERATION

1. Place a load on the turntable. For best results, center the load on the turntable making sure that any uneven overhang does not exist.

2. Pull out a sufficient length of film from the roll carriage to reach the load and/or the pallet. Press the FILM ASSIST pushbutton located on the membrane panel to reduce the force required to manually pull the film through the film delivery system. Attach the film to the load by securely tucking the film between the lower tiers of the product itself or between the load and the pallet (shown below). Light loads may require that the film be attached to the pallet.

3. Press the green START switch. This will initiate the wrap cycle. The turntable will begin to rotate in a clockwise (CW) direction. After a short delay, the roll carriage will begin to travel upward.

   When the load height sensing photocell "sees" the top of the load and the load height sensing delay "P1" times out, the roll carriage will stop. The machine will then apply the preset number of wraps to the top of the load. When this event is completed, the carriage will begin its descent to the home or starting position.



Once the roll carriage has returned to the home position, the machine will apply the preset number of wraps to the bottom of the load. Once this event is completed the turntable will stop. This marks the end of the wrap cycle.

4. Cut the film coming from the roll carriage near the corner of the load. Wipe the tail of hanging film against the side of the load. This will keep the film from unwrapping.

5. Remove the unitized load from the turntable.

6. Place the next load on the turntable and repeat STEP 2. You are ready to begin the next wrap cycle by depressing the START switch.

4.5 MACHINE OPERATION CONTINUED

BAND

The band feature allows for the application of multiple layers or bands of film onto a load. This feature is commonly used to add strength and stability to the uppermost portion of a load, however, multiple layers or bands can be applied to any area on the load just by positioning the roll carriage. The BAND operation has two (2) different sequences. Read thoroughly and follow these steps in order to utilize the BAND feature:

SEQUENCE - 1

1. With the load on the turntable, press the roll carriage UP touch-panel to place the roll carriage relative to where the bands are to be applied onto the load. Press the FILM ASSIST touch-panel and attach the film to the load in the area which will be banded by following STEP 11 of the Machine Operation section of this manual.

2. Press the BAND touch-panel. A small round indicator light will become illuminated. Press the START switch to begin a typical wrapping cycle. The turntable will rotate the load while the roll carriage remains stationary throughout the BAND cycle.

3. When the number of bands applied is satisfactory, press the BAND touch-panel a second time. The BAND indicator light will go out and the roll carriage will proceed to perform a typical wrap cycle.

NOTE: If the BAND operation is uninterrupted, four (4) wraps of film will be applied.

SEQUENCE - 2

1. Place a load on the turntable. Press the FILM ASSIST touch-panel and attach the film to the load as described in STEP 11 of the Machine Operation section of this manual.

2. Press the START switch to begin a typical wrapping cycle. At any time, press the BAND touch-panel. A small round indicator light will become illuminated and the BAND operation will proceed.

3. When the number of bands applied is satisfactory, press the BAND touch-panel a second time. The BAND indicator light will go out and the machine will complete the wrap cycle.

NOTE: If the BAND operation is uninterrupted, four (4) wraps of film will be applied.

4.5 MACHINE OPERATION

5.0 MAINTENANCE PROCEDURES

5.1 PREVENTATIVE MAINTENANCE

As with all machinery, proper attention is the key to long component life, maximum performance, and safe operation. By spending a few minutes reading the following information you should be able to reduce downtime and prolong the life of your equipment. ***We suggest a routine schedule for performing the visual checks.***

It is important to understand that these measures are minimum recommendations. LANTECH INC. can not possibly know, evaluate, or advise the various trades in all schedules for performing any visual inspection. Because of this, LANTECH INC. has not undertaken such tasks. Accordingly, anyone who services a Lantech Inc. Stretch Wrap Machine must first satisfy himself/herself as to the schedules of visual inspection based on cycling operation and environmental locations.

VISUAL CHECKS

- √ Check for loose hardware, especially setscrews located in: sprocket hubs, bearing hubs, and flanges.
- √ Check for loose cotter pins.
- √ Check for oil leaks around reducers.
- √ Check for dry seals at the bearings.
- √ Check for chain wear and proper tension on the Roller Stretch® sprockets. The correct amount of chain tension can be checked by pulling the chain taut and having 3/8" slack.
- √ Check for a well lubricated roller chain surface.
- √ Check for belt tension/belt wear on the roll carriage pulley drive system and at the turntable drive belt.

5.2 CORRECTIVE MAINTENANCE

5.2.1 Standard Adjustments

1. Load Height Sensing Photocell (Lantech Intelli-Sensor)

PURPOSE:

TOOLS:

PERSONNEL:

PROCEDURES:

NO ADJUSTMENT IS AVAILABLE OR NECESSARY ON THIS PHOTOCELL

VERIFICATION:

Figure 1-1
Load Height Sensing Photocell

2. Roll Carriage UP Limit Switch (PLS-112)

PURPOSE: Adjust the maximum upper stopping point of the Roll Carriage.

TOOLS: 4mm metric or 5/32 SAE Allen wrench, step ladder may be required

PERSONNEL: One

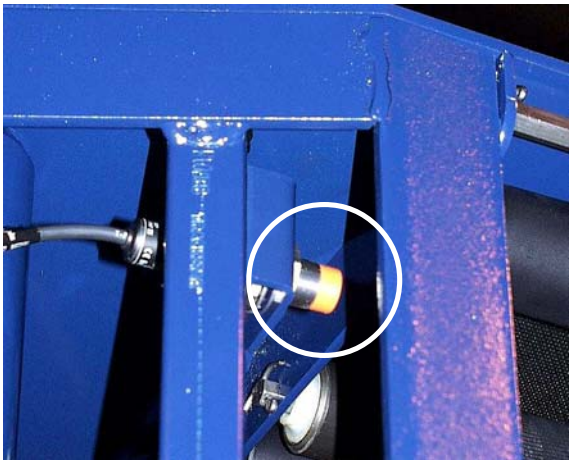
PROCEDURES:

WARNING: Remove all power from the machine.

ADJUST SWITCH LOCATION

1. Locate the upper limit switch (PLS-112). **Figure 2-1**
2. Loosen the switch bracket mounting knob. **Figure 2-2**
3. Slide the mounting bracket up or down to the desired position.
4. Retighten the switch bracket mounting knob.

VERIFICATION: Restore power to the machine. Rotate the ROLL CARRIAGE SPEED control knob on the membrane panel to full clockwise. JOG the roll carriage up until it stops at the upper limit switch. Verify clearance between the roll carriage and the top plate of the upright.



Upper limit switch from front with panels removed for clarity.

Figure 2-1
Roll Carriage UP (Upper) Proximity Limit Switch

Figure 2-2
Adjusting Knob (Roll Carriage Lower Proximity Limit Switch shown for illustration purposes)

3. Roll Carriage DOWN Limit Switch (PLS-107)

PURPOSE: Adjust the lower stopping point of the Roll Carriage.

TOOLS: 4mm metric or 5/32 SAE Allen wrench

PERSONNEL: One

PROCEDURES:

1. Using the ROLL CARRIAGE JOG push-button, raise the roll carriage approximately 3 feet above the normal down position.

WARNING: Remove all power from the machine.

ADJUST SWITCH LOCATION

2. Locate the Roll Carriage DOWN limit switch. **Figure 3-1**
3. Loosen the switch bracket mounting knob.
4. Slide the mounting bracket up or down to the desired position.
5. Retighten the switch bracket mounting knob.

ADJUST SWITCH ARM POSITION

VERIFICATION: Restore power to the machine. Rotate the ROLL CARRIAGE SPEED control knob on the membrane panel to full clockwise. JOG the roll carriage down until it stops at the DOWN limit switch. Verify clearance between the roll carriage and the base of the upright. Monitor normal wrap operation to verify desired film position. Set switch to position the bottom edge of the film web.

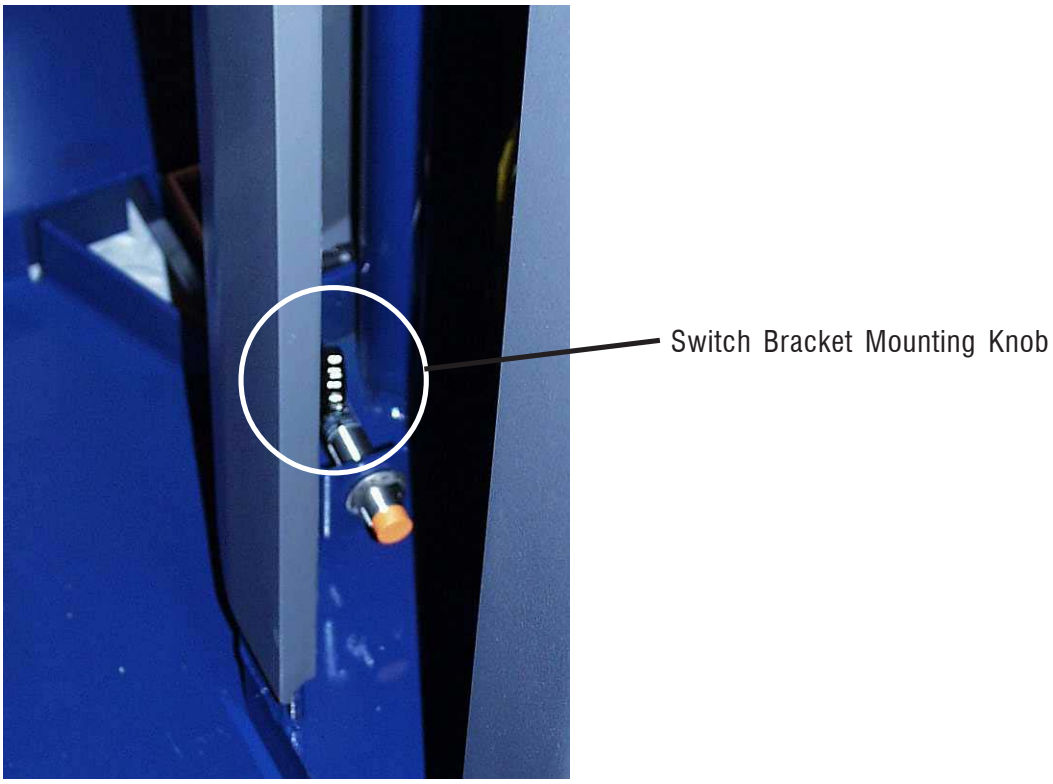


Figure 3-1
Roll Carriage DOWN (lower) Proximity Limit Switch

4. Roll Carriage Lift Belt Slack Limit Switch (LS-4)

PURPOSE:

Adjust the switch to sense slack in the lift belt. This would indicate a mechanical problem not allowing the roll carriage to lower properly.

TOOLS:

4mm metric or 5/32 SAE Allen wrench, Large flat blade screwdriver, flashlight, step ladder may be required

PERSONNEL:

Two

PROCEDURES:

WARNING: Remove all power from the machine.

1. Using the large flat blade screwdriver, open the top access door of the upright. Locate the Slack Lift Belt Switch. **Figure 4-1**
2. Push the lift belt away to gain working clearance.
3. Using the 4mm or 5/32" Allen wrench, loosen the lever arm retaining screw.
4. Position the lever arm to point down at about 45 degrees to the upright. **Figure 4-2**
5. Securely tighten the lever arm retaining screw.
6. Slowly release the belt and confirm that the switch lever arm is actuated by the belt tension. By carefully listening, an audible click can be heard when the switch is actuated.

VERIFICATION:

Restore power to the machine. Pull out the Emergency Stop pushbutton. Jog the Roll Carriage up about 3 feet. Place a film roll on end below the Roll Carriage. Jog the Roll Carriage down until it rests on the film roll. The lift belt should go slack and the Roll Carriage lift drive will stop driving. LED-2 on the micro-controller, MC-1, will go off.

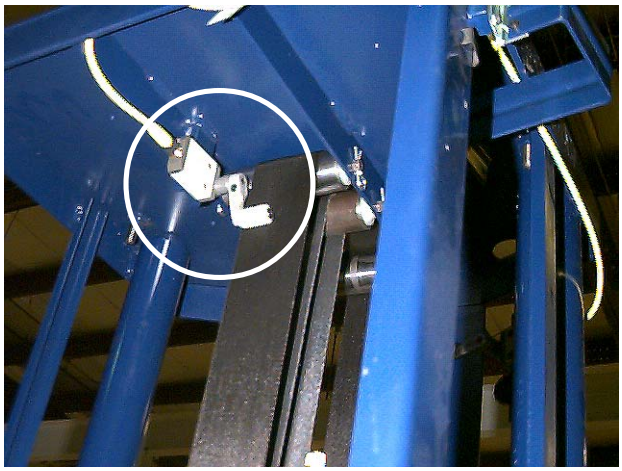


Figure 4-1
Roll Carriage Lift Belt Slack Limit Switch (LS-4)
(Shown with panels removed for improved visibility)

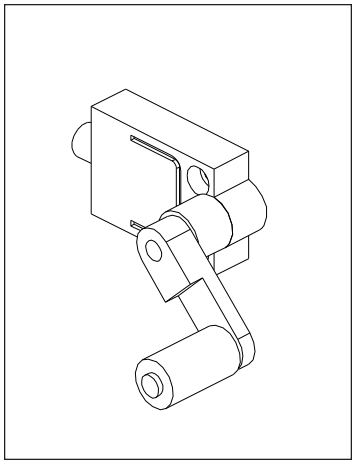


Figure 4-2
Roll Carriage Lift Belt Slack Limit Switch (LS-4)

5. Turntable Home Proximity Limit Switch (PLS-1)

PURPOSE: Adjust the switch to provide reliable actuation and consistent pulses for the wrap counters.

TOOLS: Fork truck or suitable lifting device, chain or strap slings, 3/8-16 eye bolts (2), 24mm open end wrench, or large adjustable wrench, 5mm Allen wrench, Felt tip marker

PERSONNEL: Two

PROCEDURES:

WARNING: Remove all power from the machine.

1. Using the 5mm Allen wrench, loosen and remove the 4 countersunk bolts holding the turntable top to the drive ring. **Figure 5-1**
2. Using the 3/8-16 eyebolts threaded into the provided holes, attach a sling or other suitable device, carefully lift the turntable top and move to a location clear of the machine.
3. Locate the turntable home proximity switch and target. **Figure 5-1** & **Figure 5-2.** With the felt tipped pen, mark the top of the drive ring directly over the target location for a reference point.
4. Apply power to the machine. Rotate the TURNTABLE SPEED control knob fully counterclockwise. Press the TURNTABLE JOG pushbutton.
5. Rotate the drive ring until the mark referencing the target in aligned with the proximity switch. **Figure 5-2**
5. Adjust the proximity switch to target gap until a 1 /4" gap is obtained at the closest point. This may be done by loosening the 24mm jam nuts on the switch body and moving the switch in and out. Secure the jam nuts and recheck the gap. Repeat as necessary.
6. Rotate the TURNTABLE SPEED control knob to the 12 o'clock position. Jog the turntable and verify that LED-4 on the micro-controller (MC-1) comes on each time the target passes the proximity switch.
7. Replace the turntable top.

VERIFICATION: Test wrap a load. Verify that the machine performs the correct number of wrap counts as displayed in the wrap count display window. The machine is now ready for normal operation.

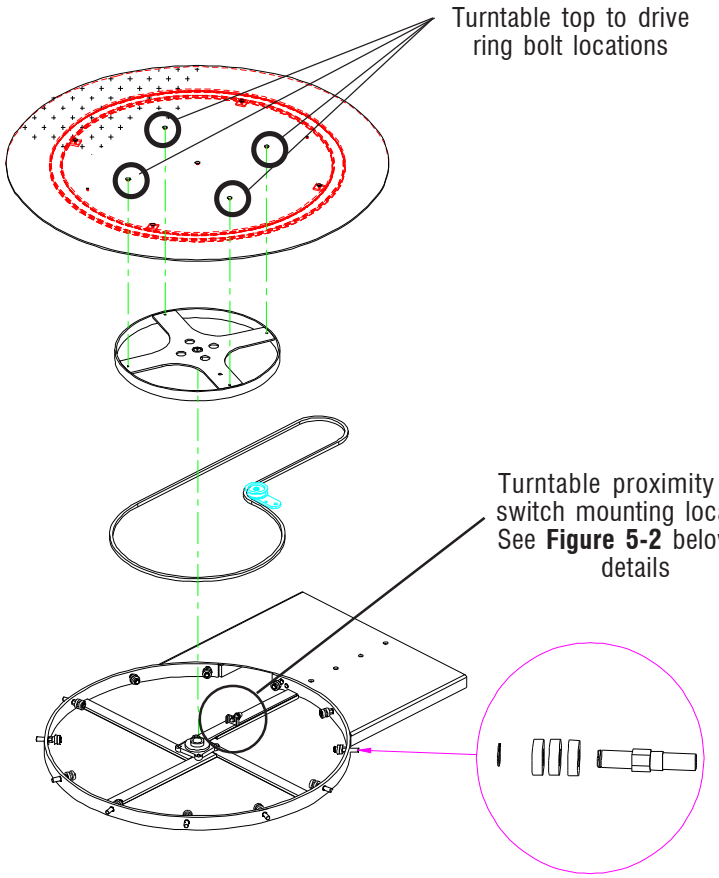


Figure 5-1
Turntable and base assembly showing turntable top, drive ring, drive belt, and bearing locations

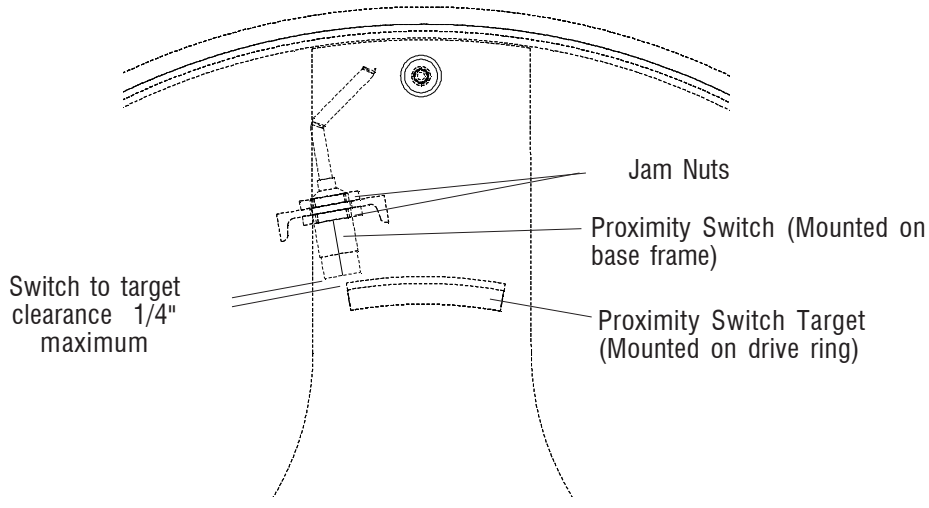


Figure 4-2
Roll Carriage Lift Belt Slack Limit Switch (LS-4)

6. Turntable Drive Belt Tensioning

PURPOSE:

Adjust the turntable drive belt for the proper tension to prevent slippage or possible belt damage after belt replacement.

TOOLS:

13mm combination wrench, or adjustable wrench, 19 mm open end wrench or large adjustable wrench, 5mm Allen wrench

PERSONNEL:

One

PROCEDURES:

WARNING: Remove all power from the machine.

1. Remove the tensioner cover plate located at the rear of the turntable base using the 13mm wrench and the 5mm Allen wrench. **Figure 6-1**

2. Improved access may be gained by removing the lower front panel. **Figure 6-2.** Using the 13mm wrench, loosen the bolt attaching the jackscrew to the tensioner assembly plate. **Figure 6-3**

3. Rotate the adjustment nut, using the 19mm open end wrench, **Figure 6-3**, to increase or decrease tension.

NOTE: As you look down at the tensioner, rotating the nut away from you decreases belt tension. Rotating nut toward you increases tension.

NOTE: Run the machine and wrap 2 - 3 loads then retension the drive belt. This will insure proper operating tension. (This initial procedure was done before shipment at the manufacturing plant) **AFTER APPROXIMATELY 100 LOADS, RETENSION THE BELT!**

4. Correct belt tension is achieved when the turntable, with a load in place, can be is started and stopped without belt slippage.

Warning: Care should be taken to avoid overtightening which could result in premature drive component failure.

5. SEE NOTE AT LEFT! After adjustment is performed, tighten the jackscrew to tensioner assembly jam nut securely.

6. Reinstall the tensioner cover plate.

VERIFICATION:

Test wrap a load. Verify that the machine will start and stop without belt slippage. The machine is now ready for normal operation.

Figure 6-1
Turntable and base assembly showing turntable top, drive ring, drive belt, and bearing locations

Figure 6-2
Lower panel door removed showing the attachment screws for the lower front panel

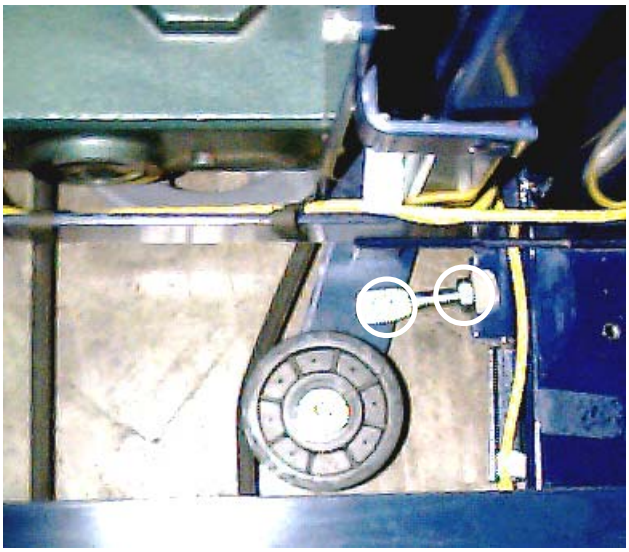


Figure 6-3
Turntable belt tensioner components

7. Auto Film Cut-off™

PURPOSE: Properly position Auto Film Cut-off™ to consistently cut film.

TOOLS: 4mm Allen wrench

PERSONNEL: One

PROCEDURES:

WARNING: Remove all power from the machine.

1. Locate the Auto Film Cut-off™ device mounted on a 5/8" diameter shaft located on the film roll carriage. **Figure 7-1**
2. Check for proper positioning of Auto Film Cut-off™ unit. The perforating blades should be located approximately 2 inches down from the dancer assembly top plate.
3. Manually press in the solenoid plunger to extend the perforating blades. Check the clearance of the blade tips from the gate mounted idler. **Figure 7-2** To adjust the clearance loosen the mounting screws and rotate the unit while holding blades fully extended.

   NOTE: When in the retracted position, the blades should not come in contact the film web.

4. After verifying proper positioning, tighten the mounting screws securely.
5. Timing of the Auto Film Cut-off™ operation is adjusted by PRESET (P5) accessed from the Operator Control Panel. (See Operator Instructions Section of this manual)

VERIFICATION: Test wrap a load. Verify that the film is being perforated at the appropriate point and the film is separating completely. The machine is now ready for normal operation.

Figure 7-1
Auto Film Cut-off™ Unit
Shown with cutter retracted

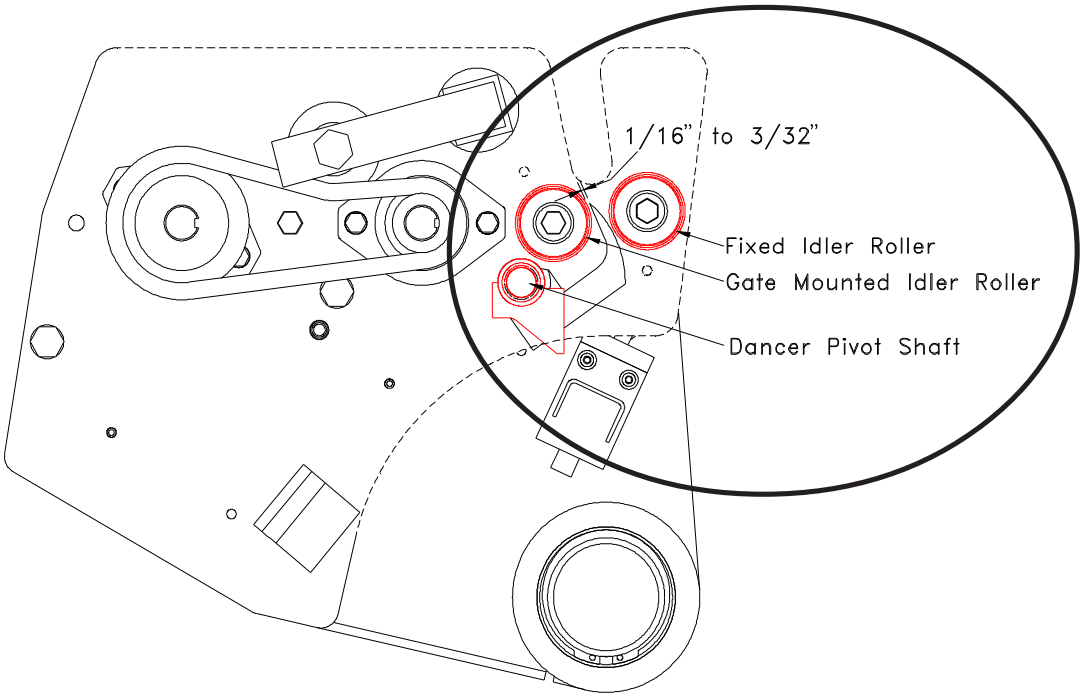


Figure 7-2
Auto Film Cut-off™ Unit
Shown with cutter extended and roll carriage top plate in phantom

8. Gravity Conveyor Turntable Top Option, Conveyor Locked (PLS-56)

PURPOSE:

Properly adjust the Conveyor Locked switch, PLS-56 to prevent the machine from starting and running without the conveyor locked.

TOOLS:

24mm open end or adjustable wrench

PERSONNEL:

One

PROCEDURES:

WARNING: Remove all power from the machine.

1. Locate the Conveyor Locked PLS-56 proximity switch. **Figure 8-1**
2. Engage the conveyor brake handle by rotating in a counterclockwise motion.
3. Check the physical gap between the proximity switch actuator and the proximity switch. The clearance should be no more than 1/4". **Figure 8-2**
4. To adjust the clearance loosen the jam nuts on either side of the switch mounting bracket. Move the switch in or out to obtain the proper spacing.
5. Tighten the switch mounting jam nuts.

VERIFICATION:

Apply power to the machine. The wrap count display should be on and LED-6 on the micro-controller should be illuminated. Rotate the conveyor locked brake handle clockwise to release the brake. The wrap count displays should go dark and LED-6 on the micro-controller will be off. The machine will not respond to any manual functions until the brake is set in the locked position.

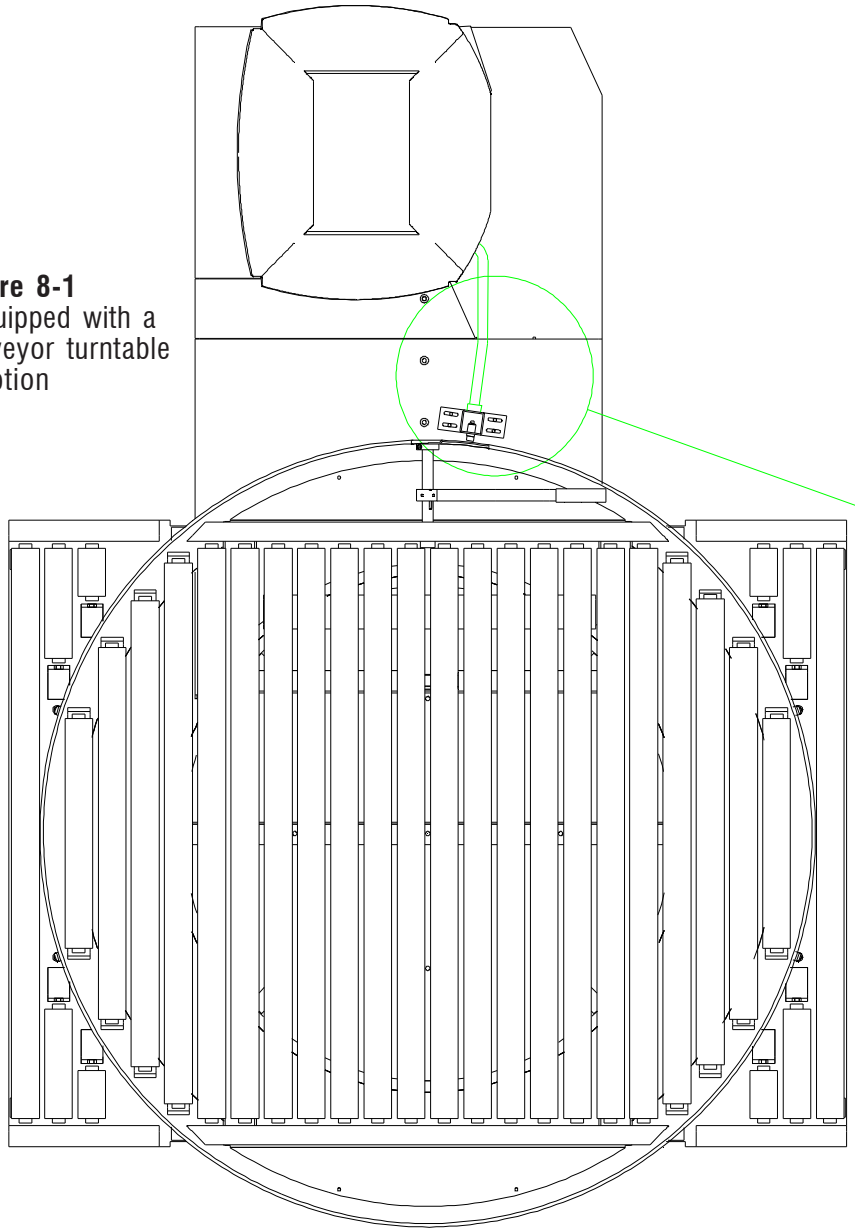


Figure 8-1
Q-Semi equipped with a gravity conveyor turntable option

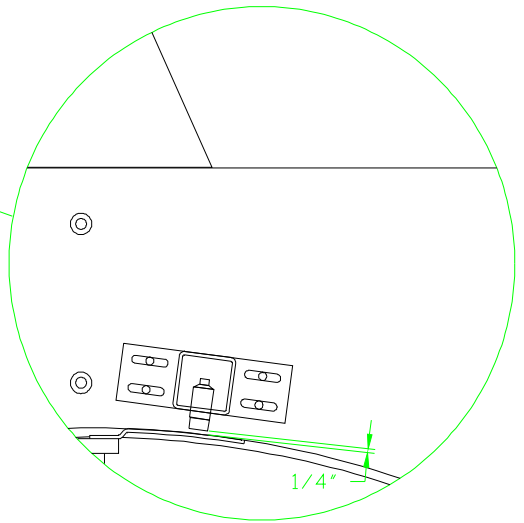


Figure 8-2
Conveyor locked proximity switch and actuator

PURPOSE:

TOOLS:

PERSONNEL:

PROCEDURES:

5.2.2 Technical Adjustments

1. Turntable Motor Control Board (SCR-1)

PURPOSE: Adjust the Turntable Motor Control board for optimum performance.

TOOLS: Small nonconductive flat blade screwdriver, Ametek digital force gauge or equivalent, Digital Voltmeter Meter (DVM)

PERSONNEL: Two

PROCEDURES: The Turntable Motor Control Board provides consistent control of the turntable operation. The rate at which the turntable speeds up, slows down and rotates during a wrap cycle is determined by the trimpots located on the motor control board. These trimpots are listed and described below. **Figure 1-1 - Figure 1-2**

DECEL: The Decel (deceleration) control is factory preset to the 12 o'clock position. It allows a smooth ramp-down or "slowdown," of the turntable, when homing at the end of the wrap cycle. **Turning the trimpot clockwise increases, or lengthens ramp-down time.**

ACCEL: The **ACCEL** (acceleration) control is factory preset to the 12 o'clock position. It allows a smooth, controlled, start of the turntable. **Turning the trimpot clockwise increases, or lengthens acceleration time.**

IR: The **IR** (Internal Resistance Compensation) control is factory preset to the 9 o'clock position. This control compensates for changing load conditions. May also be referred to as an "anti-hunting" control.

Adjustment:

NOTE: Adjustment is performed while wrapping a load.

Adjust the **IR** trimpot clockwise and counter-clockwise until the turntable rotates smoothly without surging or "hunting".

NOTE: Excessive IR compensation may cause motor control to become erratic.

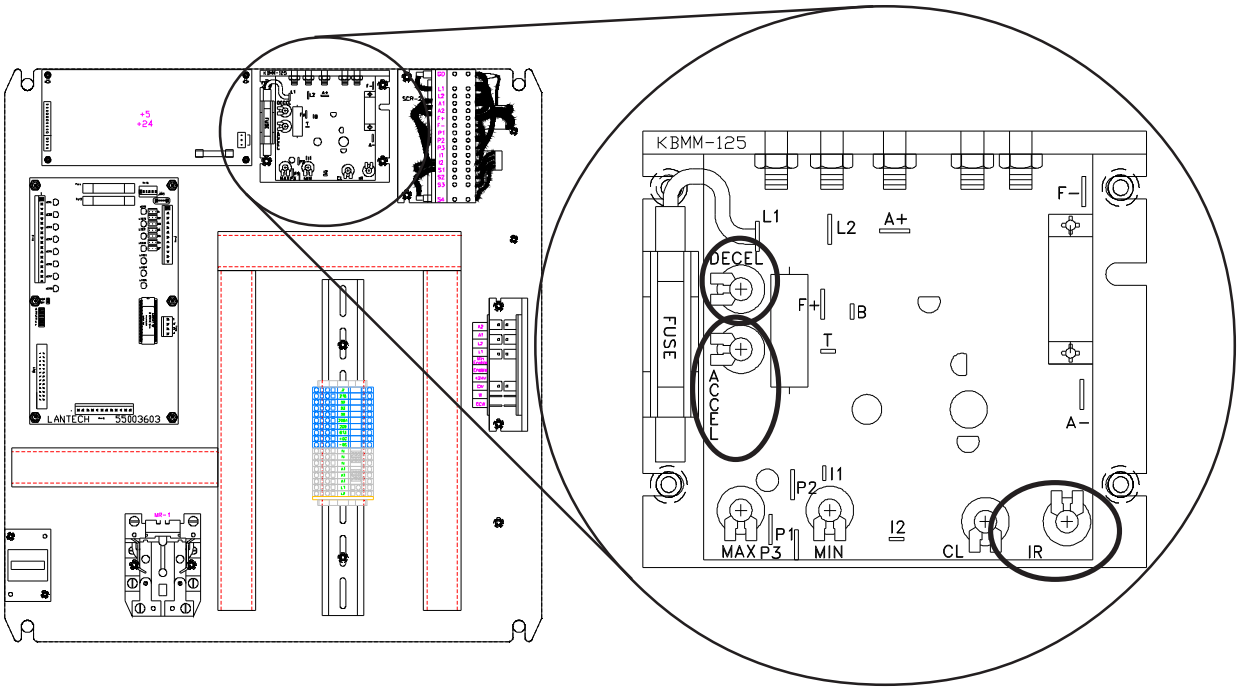


Figure 1-1
Turntable Motor Control
Board trimpot locations

PROCEDURES: continued

CL: The **CL** (Current Limit) control is factory preset to the 3 o'clock position. The **CL** trimpot limits the inrush current to a safe level during turntable motor start-up and protects against overloads. **Turning the trimpot in the clockwise direction increases current output capacity.**

NOTE: Always check for mechanical binding or restrictions before increasing the Current Limit.

Adjustment: Adjust to factory preset.

MIN: The (minimum) speed trimpot is factory preset to the 10:30 o'clock position. It determines turntable speed when the **Turntable Speed** knob is adjusted fully counter-clockwise. The **MIN** trimpot adjustment also establishes the turntable "**HOME**" speed at end of the wrap cycle.

Adjustment:

Rotate the Turntable Speed knob to the SLOW position and press the Jog button.

Adjust the **MIN** trimpot for 17 VDC measured across wires 4T1 and 4T2 (**Terminals A+ & A-**) on the Turntable Motor Control Board SCR-1.

NOTE: There is some interaction between the MAX and the MIN. To save time, set the MIN first. When one is adjusted, the other may also be affected.

MAX: The (maximum) speed trimpot is factory preset to the 11:30 o'clock position. It determines turntable speed when the **Turntable Speed** knob is adjusted fully clockwise.

Adjustment:

Rotate the **Turntable Speed** knob to the **FAST** position and press the **Jog** button.

Adjust the **MAX** trimpot for 90 VDC measured across wires **4T1** and **4T2,** (terminals A+ & A-), on the Turntable Motor Control Board SCR-1.

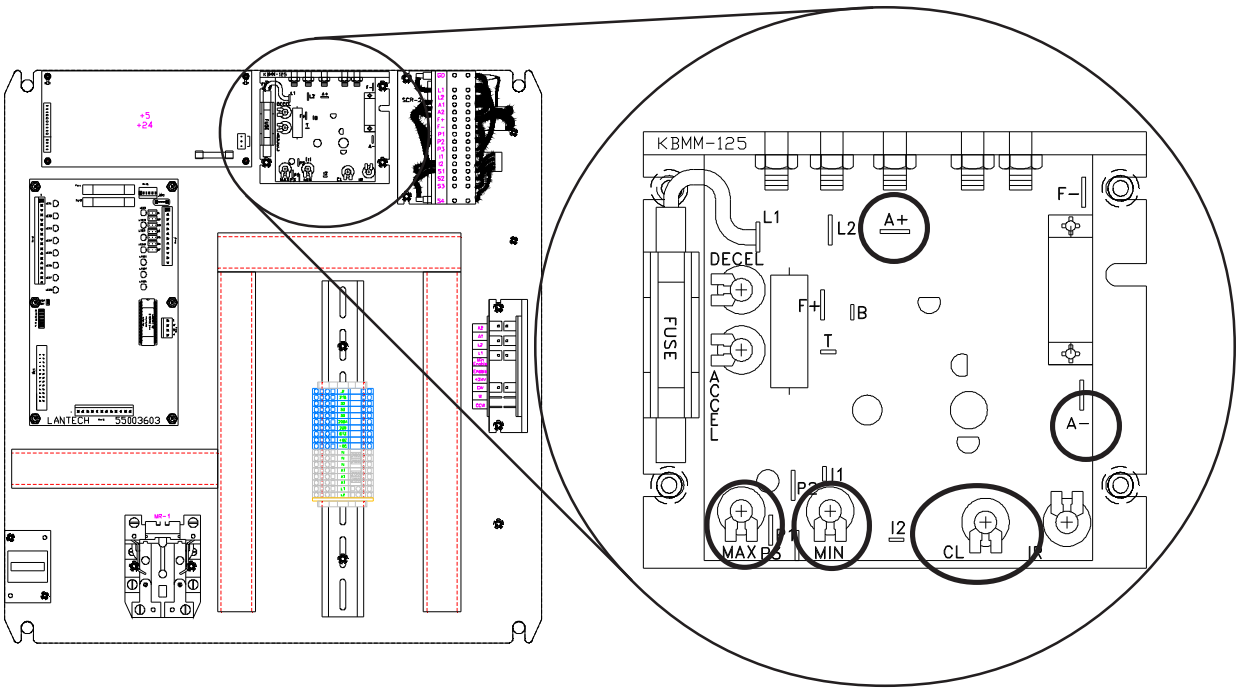


Figure 1-2
Turntable Motor Control
Board trimpot locations

2. Roll Carriage Motor Control Board (SCR-2)

PURPOSE: Adjust the Roll Carriage Motor Control board for optimum performance.

TOOLS: Small nonconductive flat blade screwdriver, Digital Voltmeter Meter (DVM)

PERSONNEL: Two

PROCEDURES:

The Roll Carriage Motor Control Board maintains speed regulation of the up and down motion of the roll carriage. This board is located in the electrical control panel and is identified as SCR-2. **(Figure 2-1)** The rate at which the Roll Carriage motor speeds up, slows down and rotates during a wrap cycle is determined by the trimpots located on the motor control board. These trimpots are listed and described below. **(Figure 2-2)**

DECEL: Not applicable in the application.

ACCEL: The **ACCEL** (acceleration) control is factory preset to the 9 o'clock position. It allows a smooth, controlled, start of the roll carriage. **Turning the trimpot clockwise increases, or lengthens acceleration time.**

IR: The **IR** (Internal Resistance Compensation) control is factory preset to the 6 o'clock position. This control compensates for changing load conditions.

Adjustment:

NOTE: Adjustment is performed while raising and lowering the roll carriage using the UP/Down buttons.

Adjust the **IR** trimpot clockwise or counter-clockwise until the roll carriage travels up and down smoothly without surging.

NOTE: Excessive IR compensation may cause motor control to become erratic. Surging or "hunting" of the motor may indicate an incorrect adjustment.

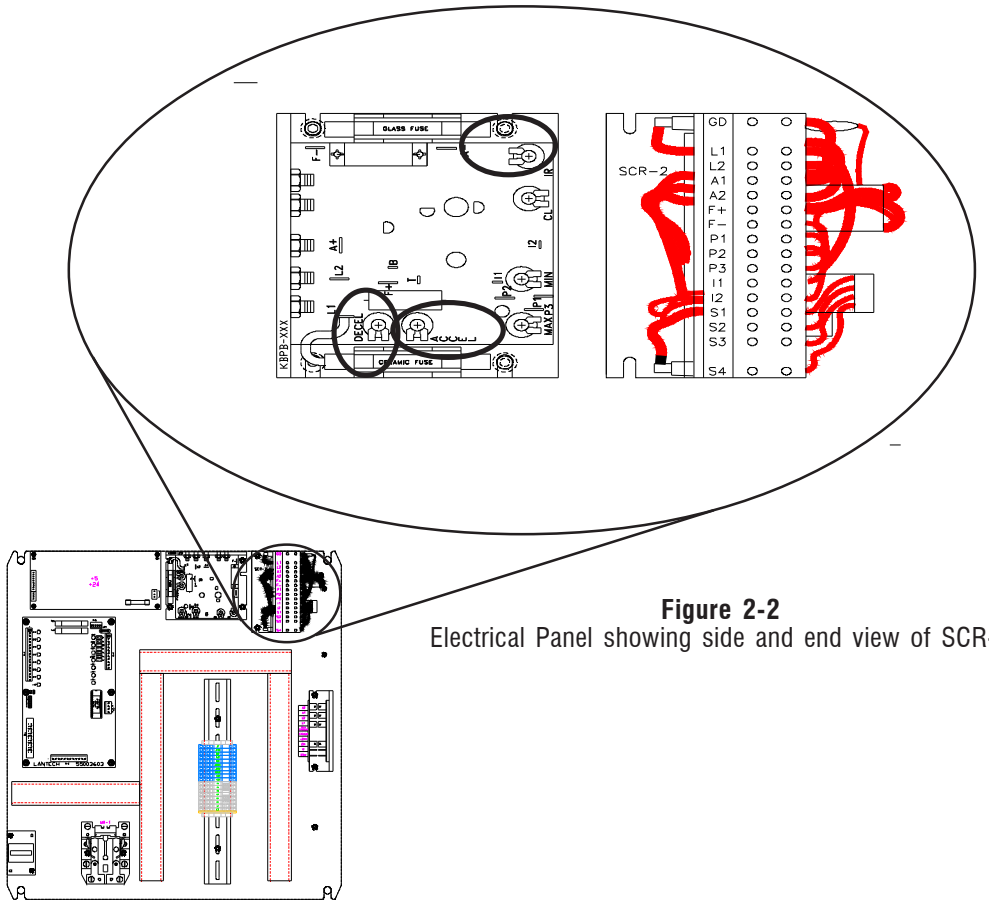


Figure 2-2
Electrical Panel showing side and end view of SCR-2

Figure 2-1
Electrical Panel showing MC-1 input LEDs

PROCEDURES: continued

CL: The **CL** (Current Limit) control is factory preset accordingly.

20" Roll Carriage: 10 o'clock.

The **CL** trimpot limits inrush current to a safe level during motor start-up and protects against overloads. **Turning the trimpot in the clockwise direction increases current output capacity.**

Locate the Roll Carriage shipping bracket. This bracket was attached to the bottom of the Roll Carriage and the base during shipping to secure the Roll Carriage. Jog the Roll Carriage up to provide clearance for the bracket. Install the shipping bracket. **(Figure 2-3)**

Adjustment:

Rotate the Roll Carriage Speed knob to the 50% position. Set the **CL** trimpot to the fully counter-clockwise position. **(Figure 2-4)**

Connect a DC ammeter in "Series" with the armature lead.

Apply power to the machine and press the **UP** button. Monitor roll carriage current.

Adjust the **CL** trimpot slowly clockwise. Set at:

20" Roll Carriage.....3.3 amps.
30" Roll Carriage.....4.8 amps.

WARNING: Remove the Roll Carriage shipping bracket after completion of adjustment procedure

NOTE: Always check for mechanical binding or restrictions before increasing the Current Limit.

DANGER: Do not attempt to use your hands or body to "lock" the roll carriage in position. To do so may result in physical injury!

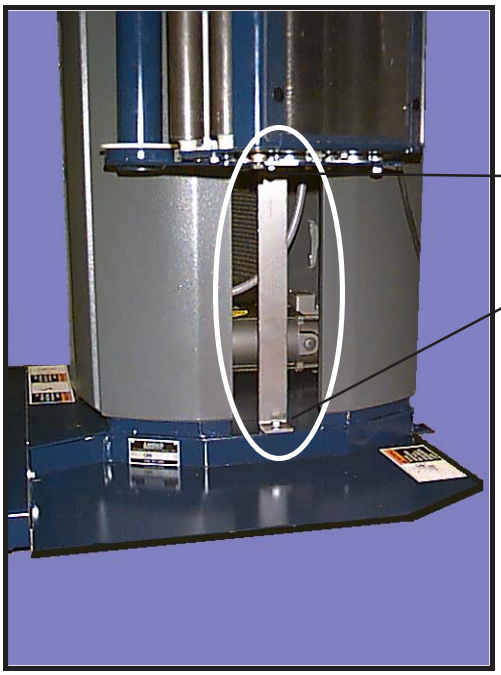
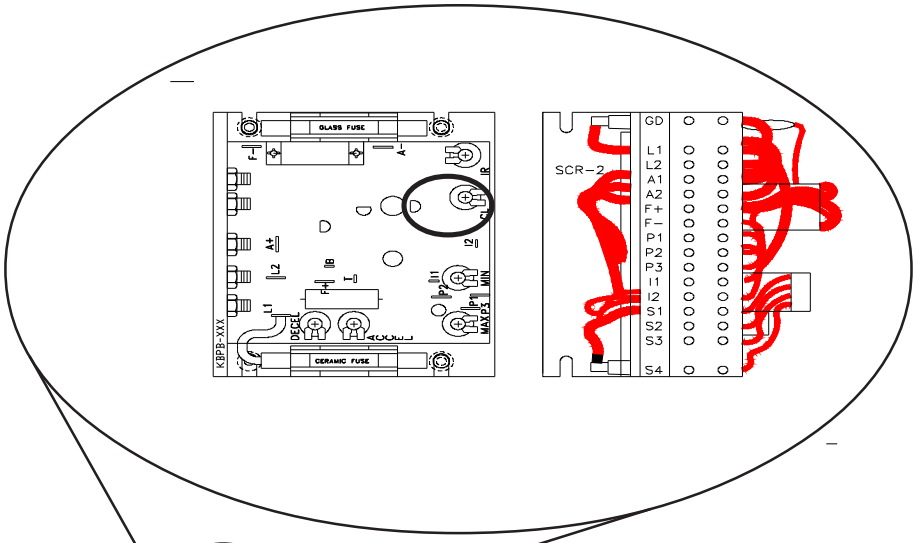


Figure 2-3
Shipping bracket installed between the Roll Carriage and the machine base.



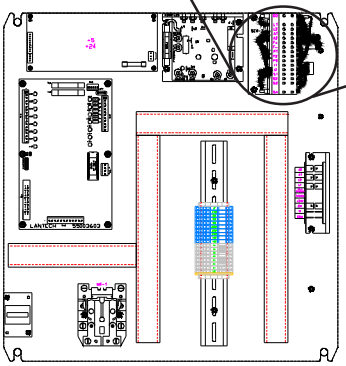


Figure 2-4
Details of Roll Carriage Motor Control Board showing trimpot locations and wiring terminals.

Figure 2-5
Electrical Panel showing Roll Carriage Motor Control Board location

PROCEDURES:
continued

MIN: The (minimum) speed trimpot is factory preset to the full counter-clockwise position. It determines roll carriage speed when the **Roll Carriage Speed** knob is adjusted fully counter-clockwise.

NOTE: The MIN speed trimpot factory setting establishes no movement when the Roll Carriage Speed knob is set fully counter-clockwise.

Adjustment:

Rotate the **Roll Carriage Speed** knob to the **SLOW** position and raise the roll carriage by pressing the **Up** button.

Adjust the **MIN** trimpot for 0 VDC measured across wires **5T1** and **5T2,** (Terminals A1 & A2), on the Roll Carriage Motor Control Board SCR-2. **Figure 2-6**

NOTE: There is some interaction between the MAX and the MIN. To save time, set the MIN first. When one is adjusted, the other may also be affected.

MAX: The (maximum) speed trimpot is factory preset at the 11 o'clock position. It determines roll carriage speed when the **Roll Carriage Speed** knob is adjusted fully clockwise.

Adjustment:

Rotate the **Roll Carriage Speed** knob to the **FAST** position and raise the roll carriage by pressing the **Up** button.

Adjust the **MAX** trimpot for 90 VDC measured across wires 5T1 and 5T2 (Terminals A1 & A2), on the Roll Carriage Motor Control Board SCR-2. **Figure 2-6**

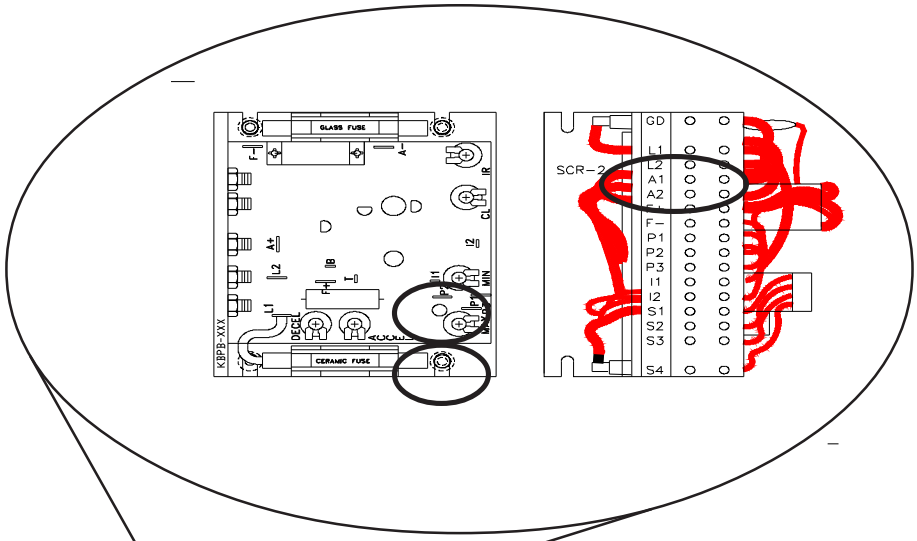


Figure 2-6
Details of Roll Carriage Motor Control Board showing trimpot locations and wiring terminals.

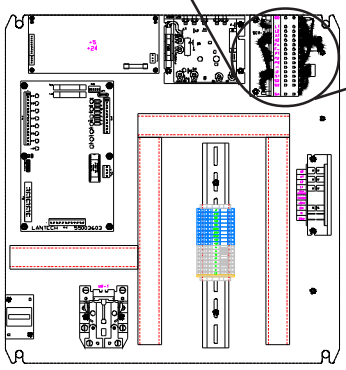


Figure 2-7
Electrical Panel showing Roll Carriage Motor Control Board location

3. Power Roller Stretch (Film Delivery System) Motor Control Board (SCR-3)

PURPOSE:

Set-up the Power Roller Stretch (Film Delivery System) Motor Control Board for consistent reliable performance and minimize film application problems

TOOLS:

Small non-conductive screwdriver, Digital Voltmeter

PERSONNEL:

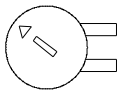
Two

PROCEDURES:

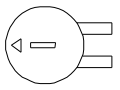
The Power Roller Stretch® Motor Control Board maintains precise control of the film delivery system. Five trimpots are provided to adjust the motor control to operate most efficiently in this application. This control board is located on the electrical control panel assembly and is identified as SCR-3. An explanation of the trimpots and their adjustments is provided as follows:

MAX: This potentiometer controls the amount of work the film delivery system motor does while delivering film to the load. The more work the motor does, the less force the film exerts on the load. In effect this control determines the force level applied to the load when the WRAPPING FORCE operator control is rotated fully counterclockwise. This potentiometer is located on the main printed circuit board. Access is best gained by using a small insulated screwdriver to perform the adjustment. **Figure 3-2**

STARTING POSITIONS



MAX: 10 o'clock



MIN: 9 o'clock

Rotate the WRAPPING FORCE operator control knob, located on the membrane panel, fully counterclockwise. **Figure 3-1**

Place a load on the machine and START the machine to perform a normal wrap cycle.

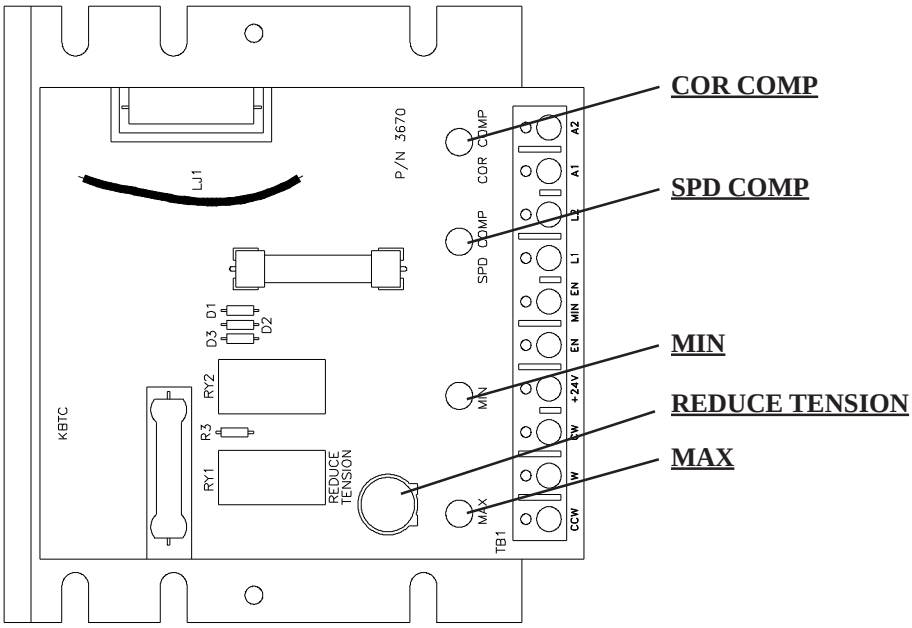
Rotate the MAX potentiometer to achieve the lowest desired wrap force. Care should be taken to maintain sufficient force to provide reliable operation.

NOTE: If the minimum force is too low, the dancer assembly that actuates the film break limit switch will "bounce" or fluctuate causing erratic system operation.

After making this adjustment rotate the WRAPPING FORCE operator control knob to achieve the desired normal wrap force. A starting point of **8 o'clock** is suggested.

NOTE: Potentiometer clock settings reference the motor control board in the normally mounted position as shown.

Figure 3-1
Operator Control panel showing WRAPPING FORCE control. (Green)

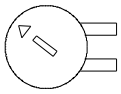


Power Roller Stretch®
Motor Control Board

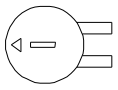
Figure 3-2
Details of Roll Carriage Motor Control Board showing trimpot locations and wiring terminals.

PROCEDURES:
continued

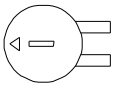
STARTING POSITIONS



MAX: 10 o'clock



MIN: 9 o'clock



REDUCE TENSION: 9 o'clock

MIN: This potentiometer controls the amount of work the film delivery system motor does when the WRAPPING FORCE operator control is rotated fully counterclockwise. This potentiometer is located on the main printed circuit board. Access is best gained by using a small insulated screwdriver to perform the adjustment. **Figure 3-2**

Rotate the WRAPPING FORCE operator control knob, located on the membrane panel, fully clockwise. **Figure 3-1**

Place a load on the machine and START the machine to perform a normal wrap cycle.

Rotate the MIN potentiometer to achieve the highest or maximum desired wrap force. The maximum wrap force may be just prior to the film breaking or when significant neckdown is noted.

NOTE: The MAX and MIN adjustments establish the range of control of the WRAPPING FORCE operator control . Using this adjustment procedure will provide a wide range of wrap force.

NOTE: After determining the desired wrapping force for the loads being wrapped, note the position of the WRAPPING FORCE control knob. If the knob position is near the maximum clockwise position, the MAX adjustment may be used to establish the operating range closer to the 12 o'clock position.

REDUCE TENSION: This trimpot controls the amount of force on the film during both the initial start of the wrap cycle and when the Film Assist button has been pressed. **Figure 3-4**

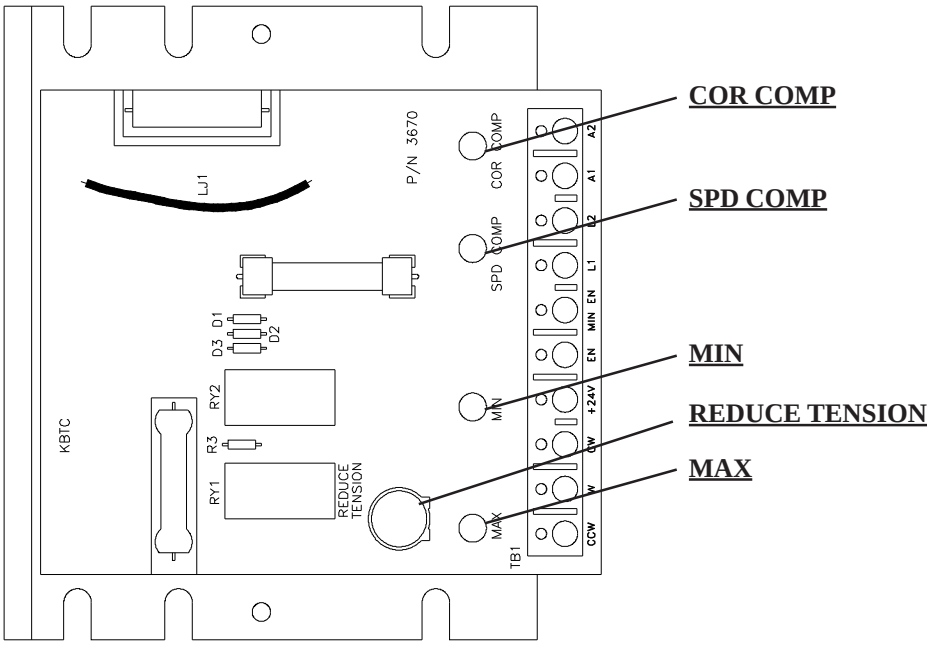
With power applied to the machine but not wrapping a load, have an assistant press the **FILM ASSIST** button and pull on the film. **Figure 3-3**

Set the **REDUCE TENSION** trimpot to obtain the desired force when the operator is pulling film out to the load.

Turn the trimpot clockwise (cw) for more tension and counter-clockwise (ccw) for less tension.

NOTE: The lowest force applied to the film during the FILM ASSIST mode will never be less than that set by the MAX potentiometer setting. Typical starting postion is 10 o'clock.

Figure 3-3
Film Assist Button

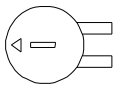


Power Roller Stretch®
Motor Control Board

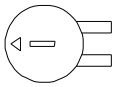
Figure 3-4
Details of Roll Carriage Motor Control Board showing trimpot locations and wiring terminals.

PROCEDURES: continued

NOTE:
Before beginning the Corner Compensation or Speed Compensation adjustments, verify that the trimpots are set to the suggested or beginning settings.



COR COMP: 9 o'clock



SPD COMP: 9 o'clock

These trimpots shown with the motor controller in the normally mounted position

Initial Trimpot Settings

COR COMP	**9 o'clock or 50% rotation**
SPD COMP	**9 o'clock or 50% rotation**

COR COMP: Corner Compensation function of the motor control board detects the increased demand of film at the corner of the load. The motor control response is boosted to maintain a consistent wrap force. The **COR COMP** adjustment controls the level of this boost. As the adjustment is rotated clockwise the level of boost is increased. Access is best gained by using a small insulated screwdriver to perform the adjustment. **Figure 3-4**

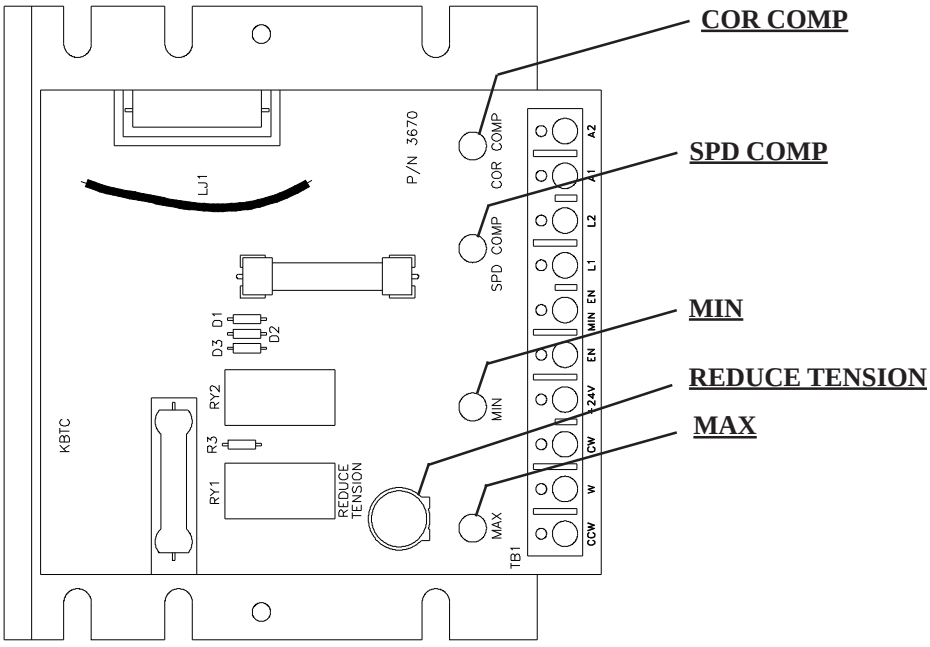
Place a load on the machine, attach film, and START the machine to perform a normal wrap cycle.

Rotate the WRAPPING FORCE operator control knob, located on the membrane panel, (**Figure 3-3),** counterclockwise until the reduced force causes the film to go slack and the film delivery system turns on and off. Increase the WRAPPING FORCE until the film delivery system stabilizes or the "bouncing" is eliminated. This is the typical setting for making the following adjustments.

Observe the film appearance and average width as the film is being applied to the corners of the load. Increased wrapping force and narrowing of the web (neckdown) of film at the load corners may indicate the need to further adjust **COR COMP** function. Overcompensation may be indicated when the wrapping force fluctuates in an exaggerated manner. (High force followed by slack film as the corners pass) The proper setting of this adjustment may be achieved as follows:

Verify the **COR COMP** and **SPD COMP** initial trimpot settings. If additional adjustment is necessary, rotate the **COR COMP** adjustment clockwise or to the right until the film shows an exaggerated high force followed by slack film as the corners pass. Now rotate the **COR COMP** trimpot counterclockwise or to the left until the variation of neckdown observed at the load corners is minimized.

Figure 3-3
Film Assist Button



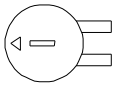
Power Roller Stretch®
Motor Control Board

Figure 3-4
Details of Roll Carriage Motor Control Board showing trimpot locations and wiring terminals.

PROCEDURES:
continued

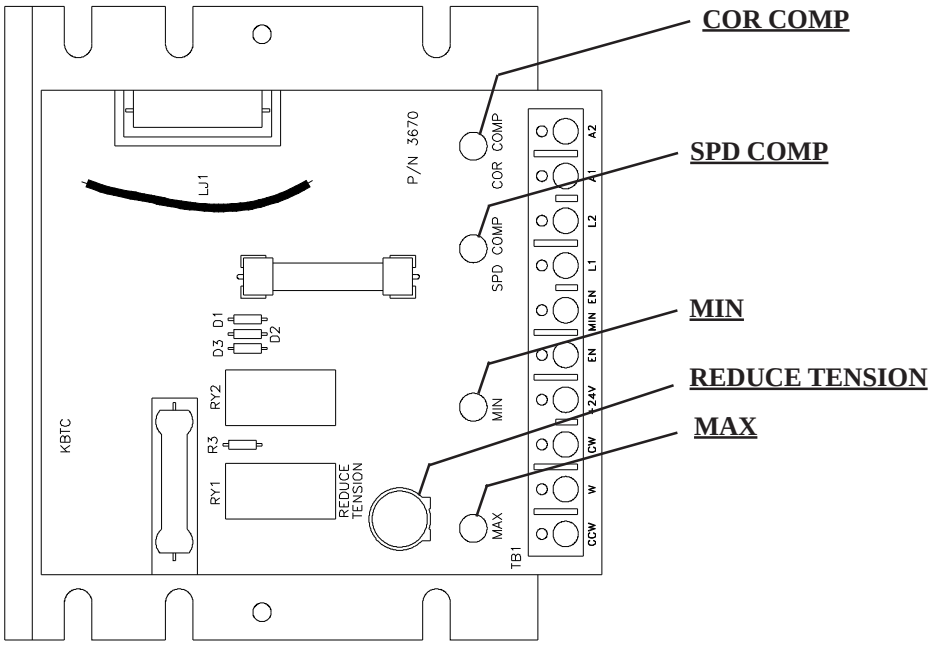
SPD COMP: The function of the Speed Compensation circuit is to provide a greater degree of response to the function of the Corner Compensation signal.

Verify the SPD COMP trimpot initial setting of 9 o'clock or 50% rotation. Further adjustment of this trimpot is not required.



SPD COMP

These trimpot shown with the motor controller in the normally mounted position



Power Roller Stretch®
Motor Control Board

Figure 3-4
Details of Roll Carriage Motor Control Board showing trimpot locations and wiring terminals.

Power Roller-Stretch® PLUS
(Film Delivery System)

The following components make up the Power Roller-Stretch® PLUS film delivery system. Each component serves an important role in the overall operation of the system. It is important, when calibrating the individual components, to follow the correct order due to the impact on the overall system.

NOTE: **It is essential that the overall system calibration be checked after any component replacement or recalibration.**

Load Cell Alignment.

Load Cell Amplifier Board Calibration.

***Power Roller-Stretch® PLUS* Motor Control Board (SCR-3).**

Analog To Digital Converter Board (AD1).

4. Power Roller Stretch *PLUS* (Film Delivery System) Load Cell Alignment

PURPOSE:

Adjust the load cell and actuator alignment so that an output signal proportional to film force on the load may be obtained.

TOOLS:

4mm Allen wrench

PERSONNEL:

One

PROCEDURES:

The load cell is located on the roll carriage assembly on the bottom plate near the base of the dancer assembly. The load cell produces an output signal proportional to film force on the load. It is important that the actuator and the face of the load cell be parallel. Incorrect alignment will prevent correct load cell calibration.

1. Verify configuration jumper on the micro-controller board **MC-1** is in the **"F"** position.
2. Remove the roll of film from the roll carriage.
3. Position the roll carriage so that the load cell is about eye-level.
4. Verify that proper contact is made between the load cell actuator and the load cell, referring to **Figure 4-1**.
5. If alignment is necessary, loosen mounting bolts using 4mm Allen Wrench.
6. Align load cell referring to **Figure 4-1**.

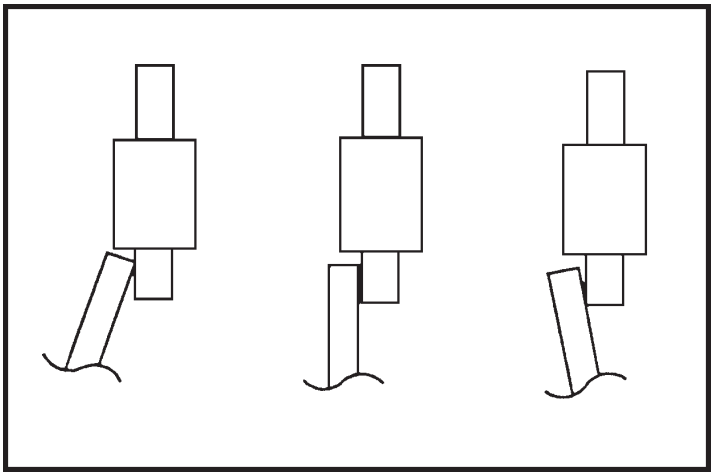


Figure 4-1
Proper Load Cell Actuator Alignment

5. Power Roller Stretch *PLUS* (Film Delivery System) Load Cell Amplifier Calibration

PURPOSE: Adjust the load cell and actuator alignment so that an output signal proportional to film force on the load may be obtained.

TOOLS: Medium Flat Blade Screwdriver, Small Non-conductive Flat Blade Screwdriver (Alignment Screwdriver), Digital Voltmeter (DVM), Accurate Force Gauge Meter. Capacity 0-50 LBS. Accuracy ± 0.5 LB.

PERSONNEL: Two

PROCEDURES:

WARNING: LOAD CELL AMPLIFIER BOARD (LANTECH PART # 55030402) IS STATIC SENSITIVE

The Load Cell Amplifier Board (Amplifier Board), Lantech Part # **55030402,** is located in the 9"X 6"X4" junction box mounted on the roll carriage carrier, within the upright. The load cell amplifier amplifies the load cell signal for motor control use.

STEP 1: Initial Set-Up For Amplifier Board Calibration.

1. Remove the second upright cover on turntable side of the upright.
2. Position the roll carriage to provide access to the junction box. **Figure 5-1**
3. Remove power from the machine.

CAUTION: Failure to remove power from the machine may result in electrical shock or damage to machine components.

4. Remove junction box cover to gain access to the Amplifier Board.
5. Verify Jumper **J1** is placed in the **STD** position on the Amplifier Board. Refer to **Figure 5-2**.
6. Locate the *Power Roller-Stretch® PLUS* Motor Control Board (SCR-3), Lantech Part # **55002404**, in the electrical control panel. **Figure 5-3**
7. Verify factory settings for (SCR-3). Refer to **Figure 5-4**.
8. Verify input voltage configuration jumpers are connected to 115V taps on SCR-3.

Figure 5-1
Q-Semi Load Cell Amplifier Board Enclosure

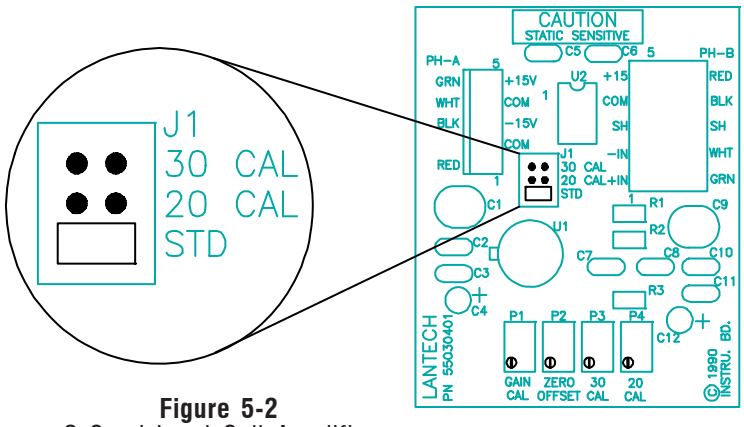


Figure 5-2
Q-Semi Load Cell Amplifier Board Enclosure

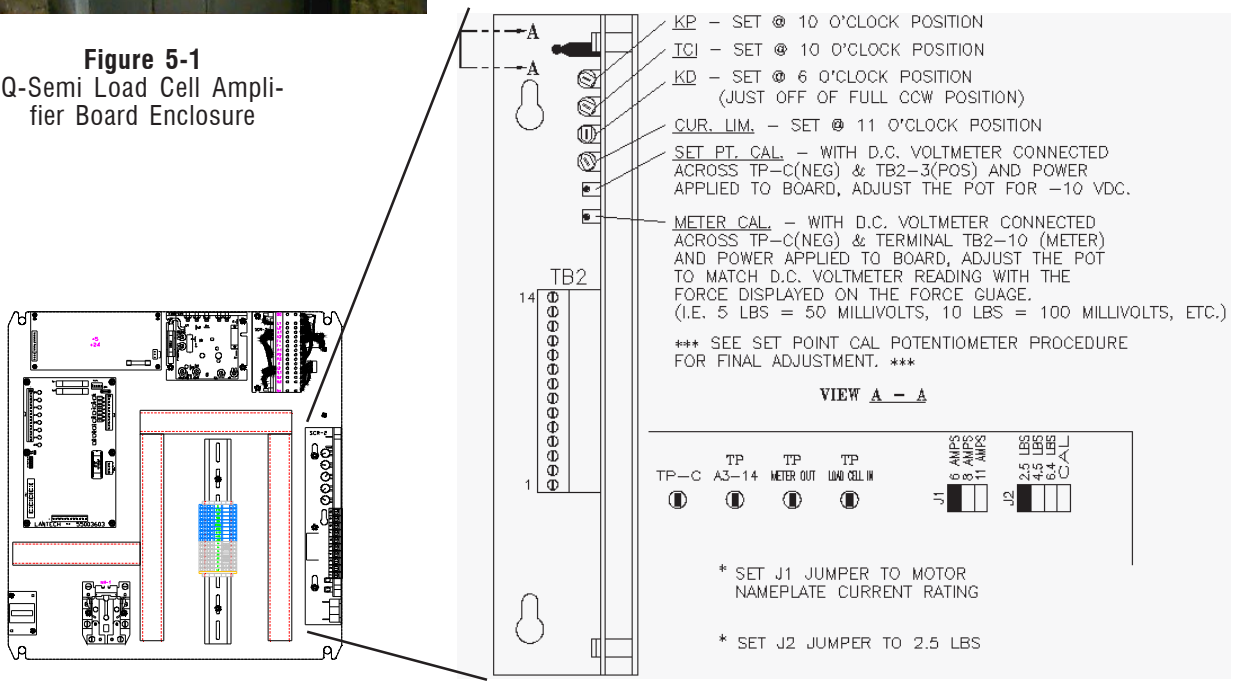


Figure 5-3
Electrical Panel showing Power Roller-Stretch PLUS® Motor Control Board location

Figure 5-4
Load Cell Motor-Controller Board (55002404) and Jumper Settings

Note: **These are starting point settings. Some "fine tuning" may need to be done to optimize the system performance.**

PROCEDURES: continued

Pre-calibrate SET PT CAL. Refer to Figure 5-5.

9. Attach DVM positive lead (red) to **TB2, PIN-3,** and negative lead (black) to circuit common **TP-C**.

10. Apply power to machine.

11. Adjust **SET PT. CAL** trimpot for negative 10 VDC.

STEP 2: Calibration Of ZERO OFFSET Trimpot On The Amplifier Board.

12. Remove power from the machine.

CAUTION: Failure to remove power from the machine may result in electrical shock or damage to machine components.

13. Attach DVM positive lead (red) to **TP-LOAD CELL IN** and negative lead (black) to circuit common **TP-C**.

14. Set the Reduce Wrapping Force Jumper **J2** to the **CAL** position. Refer to **Figure 5-5**.

NOTE: Note original position of J2.

15. Verify actuator is not contacting the load cell.

16. Apply power to machine.

17. With no pressure applied to the load cell, adjust the **ZERO OFFSET** trimpot, on the Amplifier Board, to obtain 0 VDC on the DVM. Refer to **Figure 5-6**.

Continue to **STEP 3.**

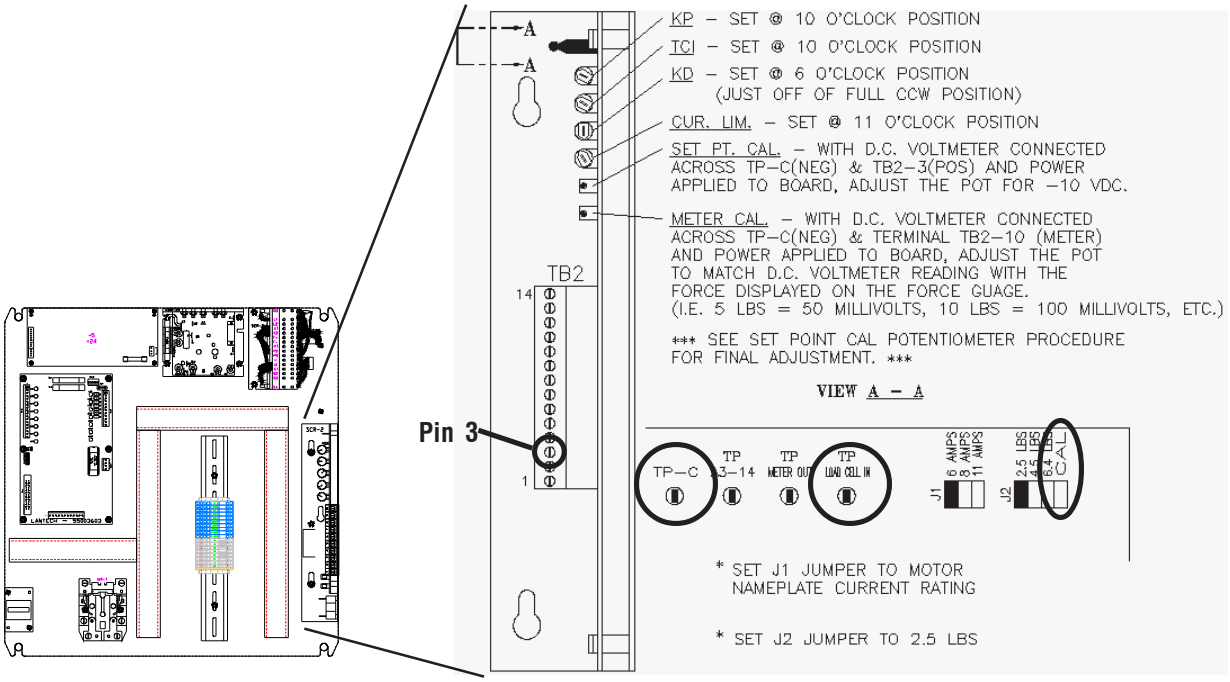


Figure 5-5
Power Roller-Stretch® PLUS Motor Control Board details

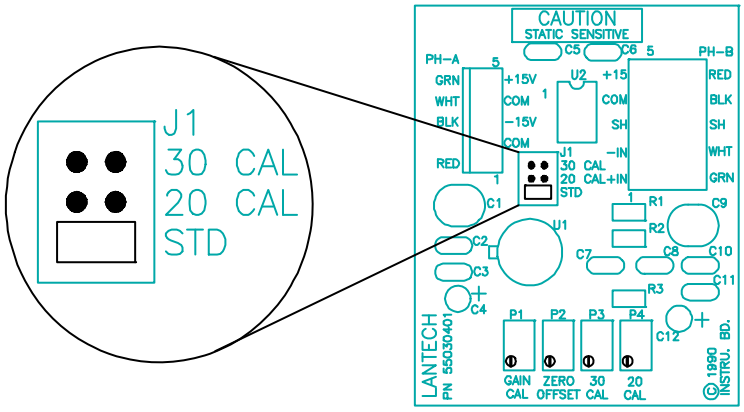


Figure 5-6
Load Cell Amplifier Board

5. Power Roller Stretch *PLUS* (Film Delivery System) Load Cell Amplifier Calibration continued

PROCEDURES: continued

STEP 3: Calibration Of GAIN CAL Trimpot On The Amplifier Board

18. Verify DVM positive lead (red) is attached to **TP-LOAD CELL IN** and negative lead (black) to circuit common **TP-C**. **Figure 5-7**

19. Thread film through the Film Delivery System and attach the film tail to the force gauge.

20. With 5 lbs. of force applied to the film, as displayed by the force gauge, adjust the **GAIN CAL** trimpot on the amplifier board to obtain 1 VDC on the DVM. (If this voltage is negative and decreases as force is applied, the load cell is mounted incorrectly and should be rotated CW or CCW, 180 degrees, before continuing). **(CW rotation increases the output and CCW rotation decreases the output.) Figure 5-8**

21. Increase the force on the film to 10 lbs. Verify 2 VDC on the DVM. If 2 VDC is not verified, recalibrate the system starting with STEP 1. If the output of the load cell amplifier is not linear, 1 VDC at 5 lbs and 2 VDC at 10 lbs, replace the load cell assembly.

22. Remove power from the machine.

CAUTION: **Failure to remove power from the machine may result in electrical shock or damage to machine components.**

23. Place jumper **J2** in the 2.5 pound position on SCR-3. Refer to **Figure 5-7**.

24. Remove DVM leads from the circuit.

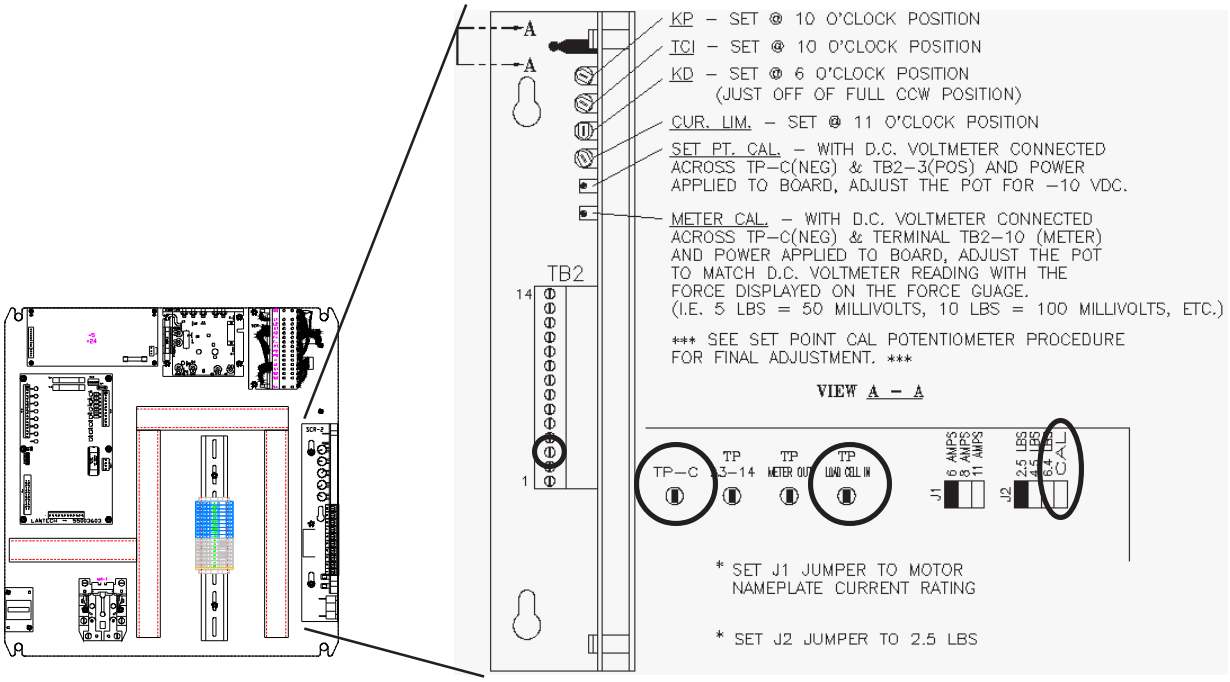


Figure 5-7
Power Roller-Stretch® PLUS Motor Control Board details

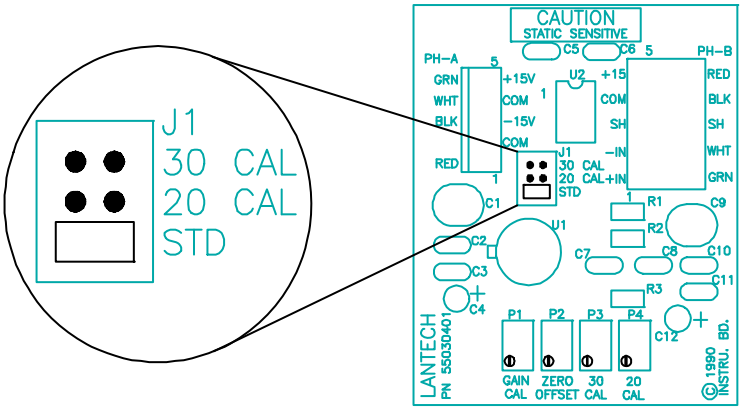


Figure 5-8
Load Cell Amplifier Board

PROCEDURES: continued

STEP 4: Final Calibration Of SET PT. CAL. Trimpot On SCR-3 Motor Control Board.

25. Remove power from the machine.

CAUTION: Failure to remove power from the machine may result in electrical shock and/or damage to machine components.

26. Verify no force is applied to the load cell.

27. Attach DVM positive lead (red) to **TP-A3-14** and the negative lead (black) to **TP-C** (COM) on SCR-3. **Figure 5-8**

28. Place jumper **J2** in the 2.5 pound position on SCR-3. Refer to Figure 3.

29. Turn Wrapping Force potentiometer fully counter clock-wise.

30. Thread film through the Film Delivery System.

31. Apply power to machine.

32. Press the Film Assist button and adjust the **SET PT. CAL.** trimpot to obtain negative 500 mVDC (millivolts) on the DVM. The Film Assist mode automatically shuts off after 5 seconds. Cycle the mode as many times as necessary to complete adjustment.

33. Remove power from the machine.

CAUTION: Failure to remove power from the machine may result in electrical shock and/or damage to the machine components.

34. Return **Reduce Wrapping Force** Jumper **J2** to the original pre-calibration position.

35. Apply power to machine and check for proper operation. (Test wrap a load).

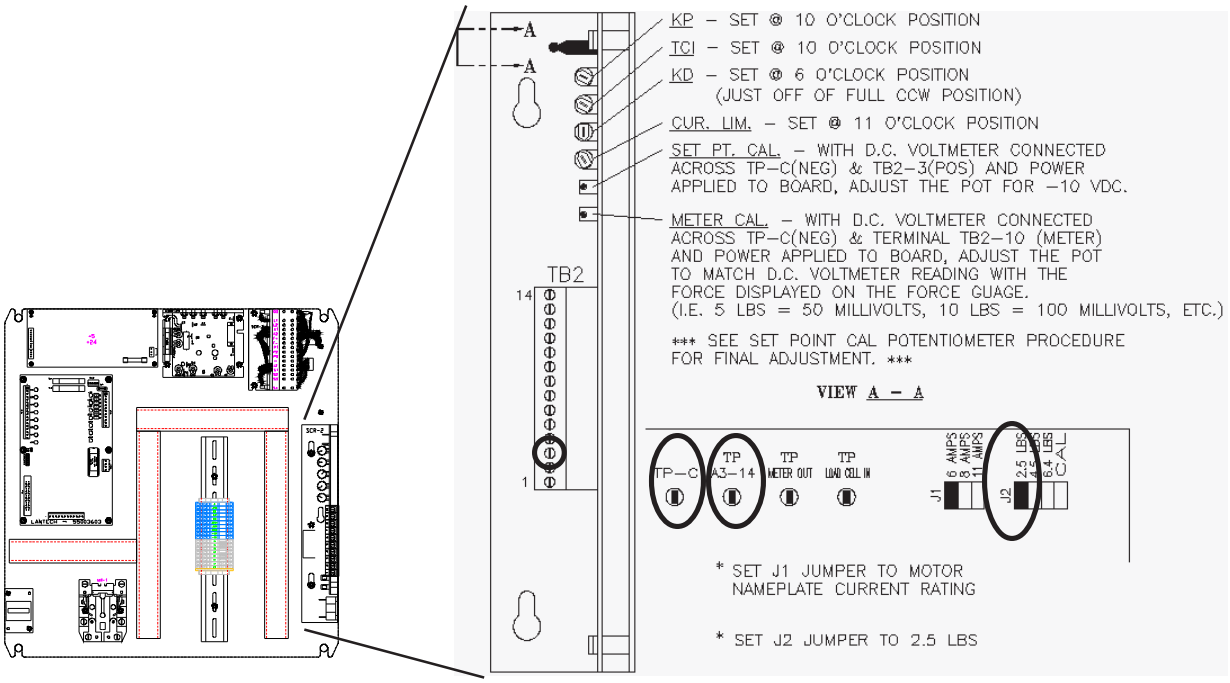


Figure 5-9
Power Roller-Stretch® PLUS Motor Control Board details

Power Roller Stretch *PLUS* (Film Delivery System) Motor Control Board

The previous calibration of the pre-stretch system load cell components ensures accurate detection and feedback of the force the film exerts on the load. The following adjustments allow the Motor-Controller Board to properly respond to that varying feedback as the load is being wrapped.

The recommended procedure of adjustment, should the need arise due to Motor-Controller Board or other component replacement, should be as follows:

Verify proper position of the jumpers on the Motor-Controller Board. (See illustration on page 33 for reference.)

Preset all four potentiometers to the recommended starting points.*

TCI	**10 o'clock**
KP	**10 o'clock**
KD	**6 o'clock**
CURRENT LIMIT	**11 o'clock**

***NOTE:** **These clock settings refer to the position of the potentiometers with the Motor-Controller Board in the normal mounted position.**

Motor Control Board Adjustment Parameters

NORMAL WRAPPING FILM SPEED

The typical machine operation (12 - 35 rpm) while wrapping a load. Watch for variations in force on the film as indicated by neckdown or tightening of the film as the demand increases at the load corners. High force at the corners would indicate a need to increase the function of KP to provide greater response at this point. This would be achieved by rotating the potentiometer clockwise.

Over response at the corners, indicated by a surging and possibly slack film at the corner passage would require the function of KP to be reduced by rotating the potentiometer counterclockwise.

HIGH OR IRREGULAR FILM SPEED

This condition is similar to the conditions noted during normal wrap speed, but is more pronounced on machines equipped with high speed wrapping options (greater than 12 rpm turntable speed) or while wrapping loads that are very rectangular or long narrow loads. If these conditions are encountered and the KP adjustment is not sufficient to minimize the symptoms, KD may need adjustment. KD anticipates the sudden film demand created by load corner passage.

Rotating this potentiometer clockwise in small increments (up to a maximum of 1/4 turn), will improve system performance under these conditions. However, normal operating conditions require that the KD potentiometer be rotated fully counterclockwise.

WIDE (SUCH AS 30" OR MORE) OR HEAVIER GAUGE FILM

These conditions demand more horsepower from the pre-stretch system to perform the same as when stretching a narrow or thinner gauge film. Verify that JUMPER J1 setting matches or is set to the next highest setting based on motor nameplate full load current.

(Example; The available J1 jumper settings are 6, 8, and 11 amps. If the pre-stretch motor nameplate full load current is 6 amps or less, the 6 amp setting would be chosen. If the nameplate full load current is between 6 and 8 amps, then the 8 amp setting would be chosen. If the nameplate full load current is between 8 and 11 amps, then the 11 amp setting would be chosen.)

CURRENT LIMIT adjustment may be indicated if rotating the operator knob that controls the film force to the load fully counterclockwise position does not provide a sufficiently low force to the load. Verify that the J1 jumper setting is correct based on the motor nameplate current. Rotate the CURRENT LIMIT potentiometer clockwise to make more current available to the motor. The CURRENT LIMIT adjustment provides up to 200% of the J1 jumper setting value.

5. Power Roller Stretch *PLUS* (Film Delivery System) Motor Control Board Calibration (SCR-3)

Motor Control Board Potentiometers
Figure 5-10

TCI

PURPOSE: The setting of the TCI Potentiometer determines the time duration allowed for the pre-stretch system response to a sudden film demand, such as a load corner passage.

TOOLS: Small Insulated Screwdriver

PERSONNEL: One

PROCEDURES: The typical setting for the TCI Potentiometer is 10 o'clock. Refer to machine operating conditions on pages 30 - 31 for explanation of this potentiometer function.

KP

PURPOSE: The setting of the KP Potentiometer determines the level of response of the pre-stretch system to a sudden film demand, such as a load corner passage.

PURPOSE:

TOOLS: Small Insulated Screwdriver

PERSONNEL: One

PROCEDURES: Refer to machine operating conditions on pages 30 - 31 for explanation of this potentiometer function.

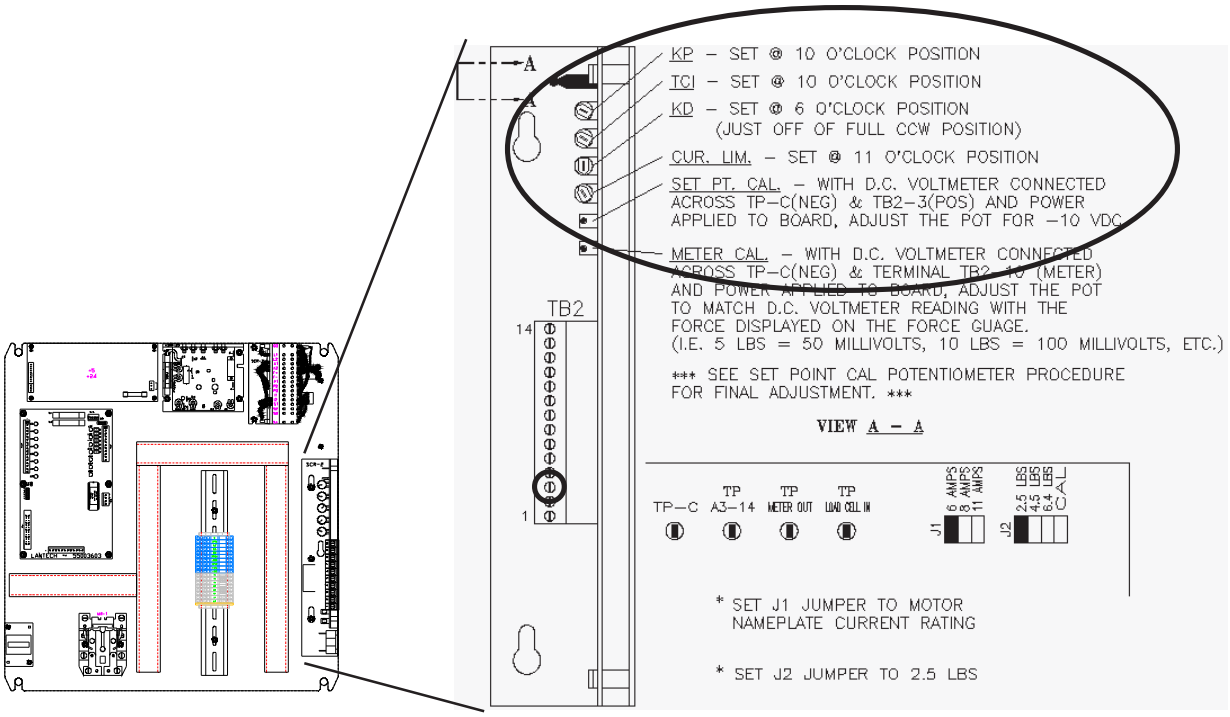


Figure 5-10
Power Roller-Stretch® PLUS Motor Control Board details

Motor Control Board Potentiometers
Figure 5-10

K D

PURPOSE: The setting of the KD Potentiometer determines when the pre-stretch system responds to a sudden film demand, such as a load corner passage.

TOOLS: Small Insulated Screwdriver

PERSONNEL: One

PROCEDURES: Full counterclockwise, the typical setting, minimizes the effect of this potentiometer.

KD adjustment may be indicated if adjustment of KP does not completely resolve the chattering or neck-down symptoms. Refer to machine operating conditions on pages 30 - 31 for explanation of this potentiometer function.

CURRENT LIMIT

PURPOSE: This Potentiometer provides a range of adjustment up to 200% of the value set by Jumper J1.

TOOLS: Small Insulated Screwdriver

PERSONNEL: One

PROCEDURES: The typical setting of 11 o'clock is normally sufficient for most machine applications. Refer to machine operating conditions on pages 30 - 31 for explanation of this potentiometer function.

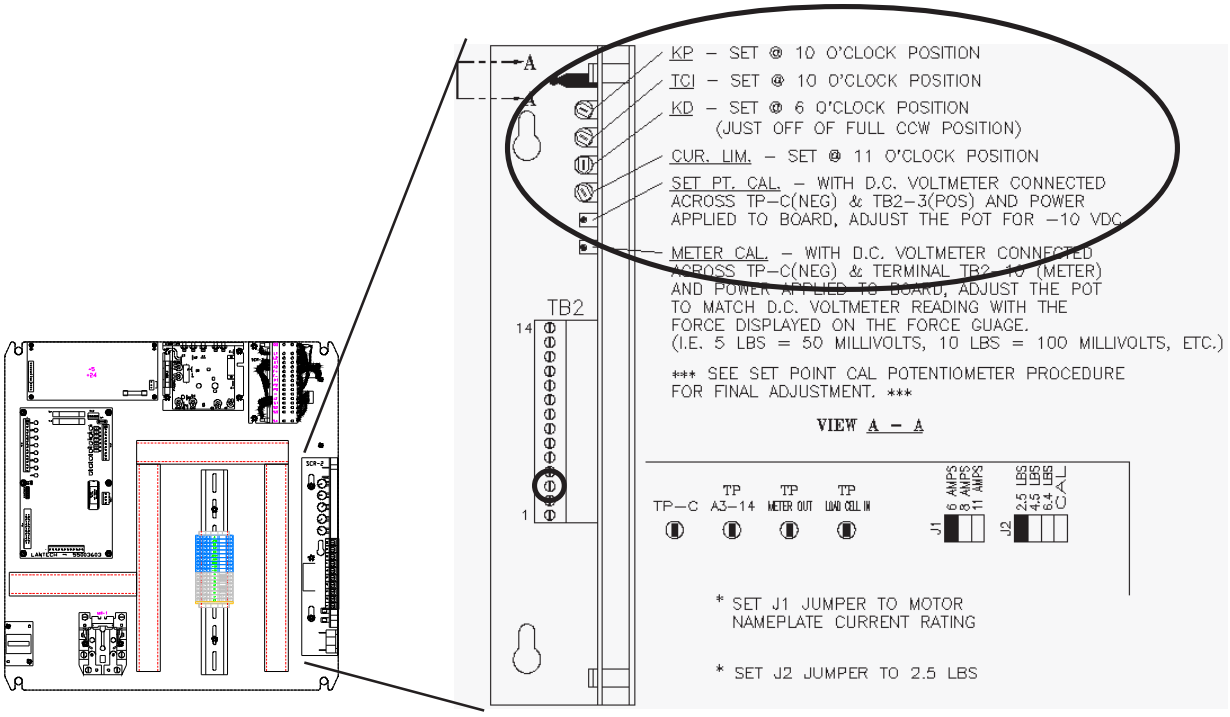


Figure 5-11
Power Roller-Stretch® PLUS Motor Control Board details

PURPOSE:

TOOLS:

PERSONNEL:

PROCEDURES:

5.3 Troubleshooting Guide

Instructions

Assume the following machine condition:, power cord plugged in, the E-Stop button is pulled out, and the wrap count display is illuminated. The machine will not start when the START pushbutton is pressed. The Table of Contents contains an entry in the General Machine section called "**4. Machine fails to start when the START button is pressed.**". This condition is found on page 10 of the troubleshooting guide. To the right is the information found under condition number 4 of the guide.

Associated graphics that show the location and details of the component in question are on the page to the right of the text. Refer to the appropriate figure.

Condition

Possible Cause

Test

Action

Supporting photo, illustration or Figure

2. Wrap Count display is blank

Test		Possible Cause		Action
Press the Turntable Jog pushbutton on the Operator Control Panel. Did the turntable move?	NO	Check cable at CN-1 on MC-1 and bottom right connector on the Digital Display Board **Figure 2-1 and 2-2**	NO	Remove and securely reinsert the cable into each connector. Replace cable if damage is apparent
YES		YES		
Problem is most likely a nonfunctional Digital Display Board. Replace **Figure 2-1**		Check for proper insertion of EPROM Chip, U8 on the MC- board. **Figure 2-3**	NO	If U8 appears to be inserted incorrectly or not present Contact your local Lantech Distributor.

3. Machine powers up but membrane functions do not respond.

Test		Possible Cause		Action
Is cable from membrane panel to the Digital Display Board connected properly?	NO	Press the PRESETS button. Preset data should be displayed in the top and bottom wrap count window. **Figure 3-2**	NO	Remove and securely reinsert the cable into each connector. Replace cable if damage is apparent
YES		YES		
		Momentarily jumper the post pins labeled REM START on MC-1 **Figure 3-1**	NO	If the machine starts and runs, replace the membrane panel. If the machine does not run, replace the micro-controller MC-1.

4. Machine fails to start when the START button is pressed.

Test		Possible Cause		Action
Observe the mode indicators at the top of the membrane panel. Is the CYCLE PAUSE mode LED illuminated?	NO	Momentarily jumper the post header pins labeled **REM START** on MC-1 **Figure 3-1**	NO	Replace the micro-controller MC-1.
YES		YES		
Press the CYCLE PAUSE pushbutton to cancel the CYCLE PAUSE mode. Figure 3-2		Verify proper cable connection from the membrane panel to digital Display Board. Replace the membrane panel.		

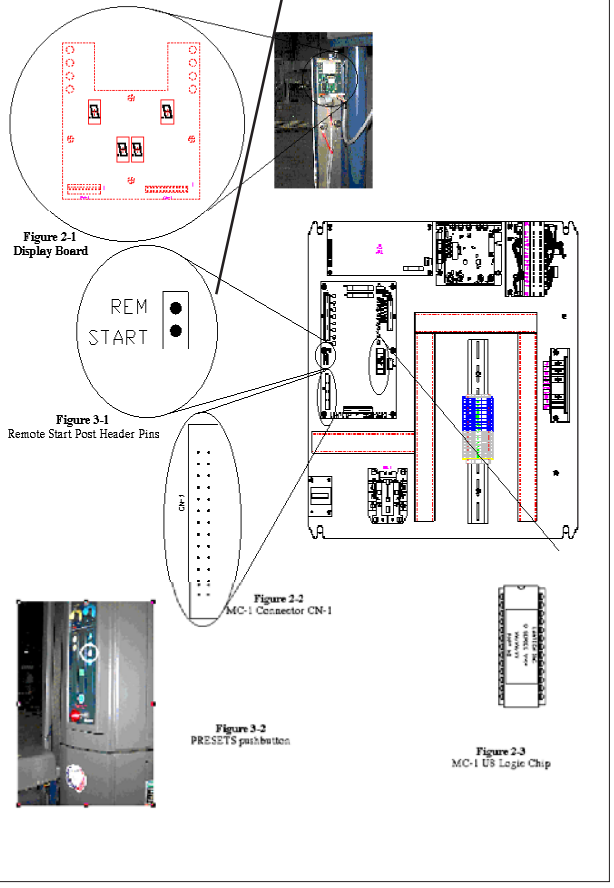


Figure 2-1
Display Board

Figure 3-1
Remote Start Post Header Pins

Figure 2-2
MC-1 Connector CN-1

Figure 3-2
PRESETS pushbutton

Figure 2-3
MC-1 U8 Logic Chip

Q-Semi Technical Troubleshooting Guide

This guide should be considered a tool that describes some typical machine and maintenance problems, their causes, and possible corrective actions for those problems. This document is not intended to cover every possible problem or condition that could exist. It does, however, attempt to cover the typical conditions as well as those potentially hard to find problems that occur during everyday operation of the equipment.

The following steps will help you receive the maximum benefit from this guide.

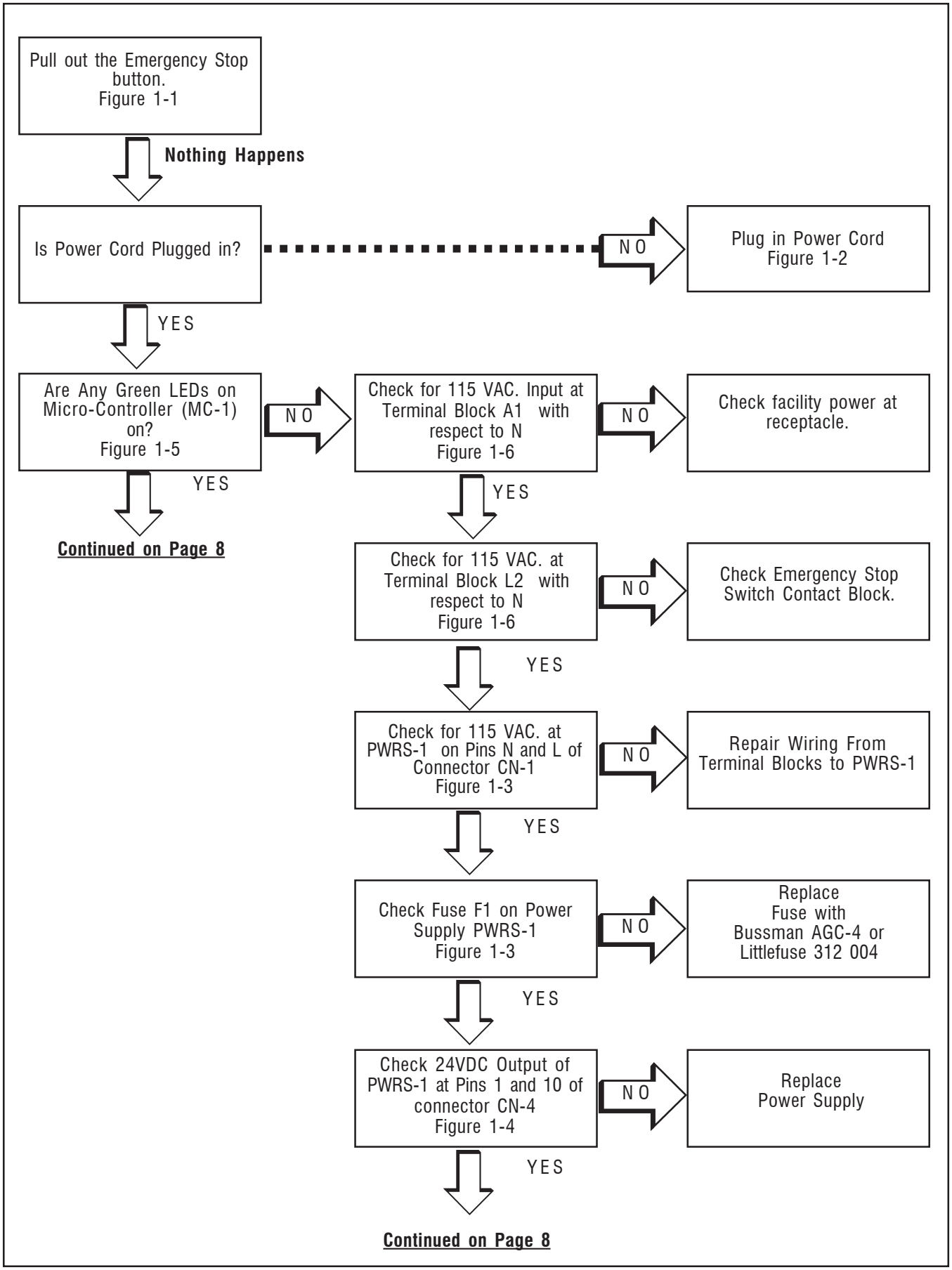
- Evaluate the problem thoroughly to be sure of symptoms before beginning action
- Refer to the Table of Contents to find the portion of the guide that is most appropriate to the problem at hand.
- Review the list of possible causes to determine the most effective starting point. (Do those things that are easiest and the most logical first.)
- Use basic analytical and troubleshooting skills and knowledge to enhance the effect of this guide.

The Table of Contents lists the possible problems or conditions. The blocks following each condition will state the possible causes, (left hand column), the steps required to test the machine components involved, (middle column), and the corrective action required, (right column). **See the facing page for an example.**

NOTE: It is important to understand that this guide assumes a basic level of technical skill on the part of the user. A working knowledge of electrical test equipment and electrical terminology is required.

Q-Semi Troubleshooting Guide

1. Machine does not power up



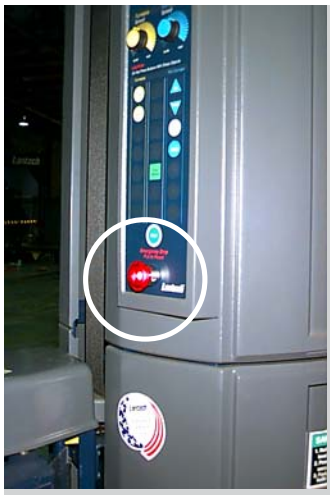


Figure 1-1
Emergency Stop Button

Figure 1-2
115 VAC, 20 amp, receptacle

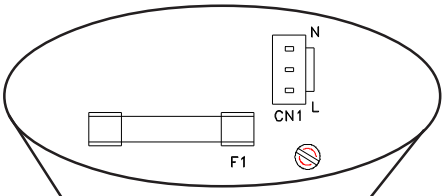


Figure 1-3
PWRS-1 CN1 connector and fuse F1

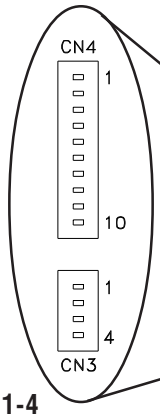


Figure 1-4
PWRS-1 Connectors

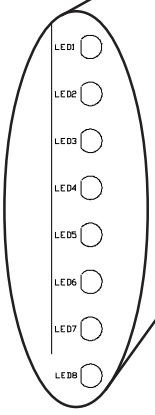
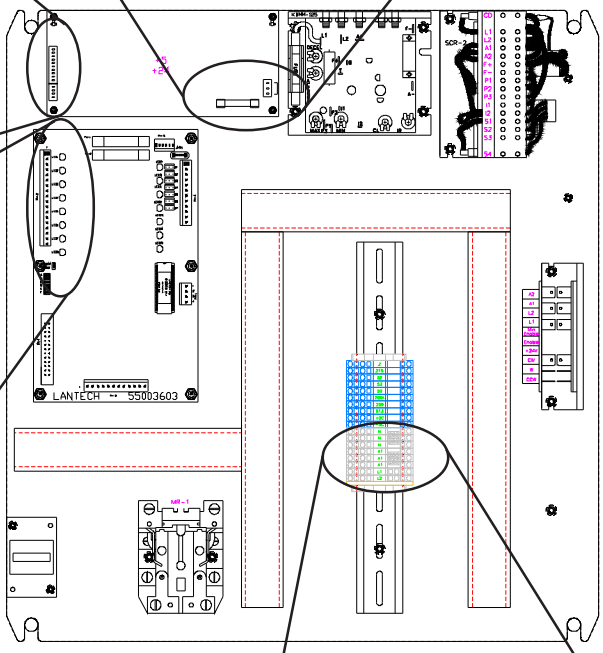


Figure 1-5
Green Input LEDs



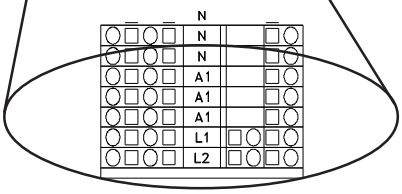
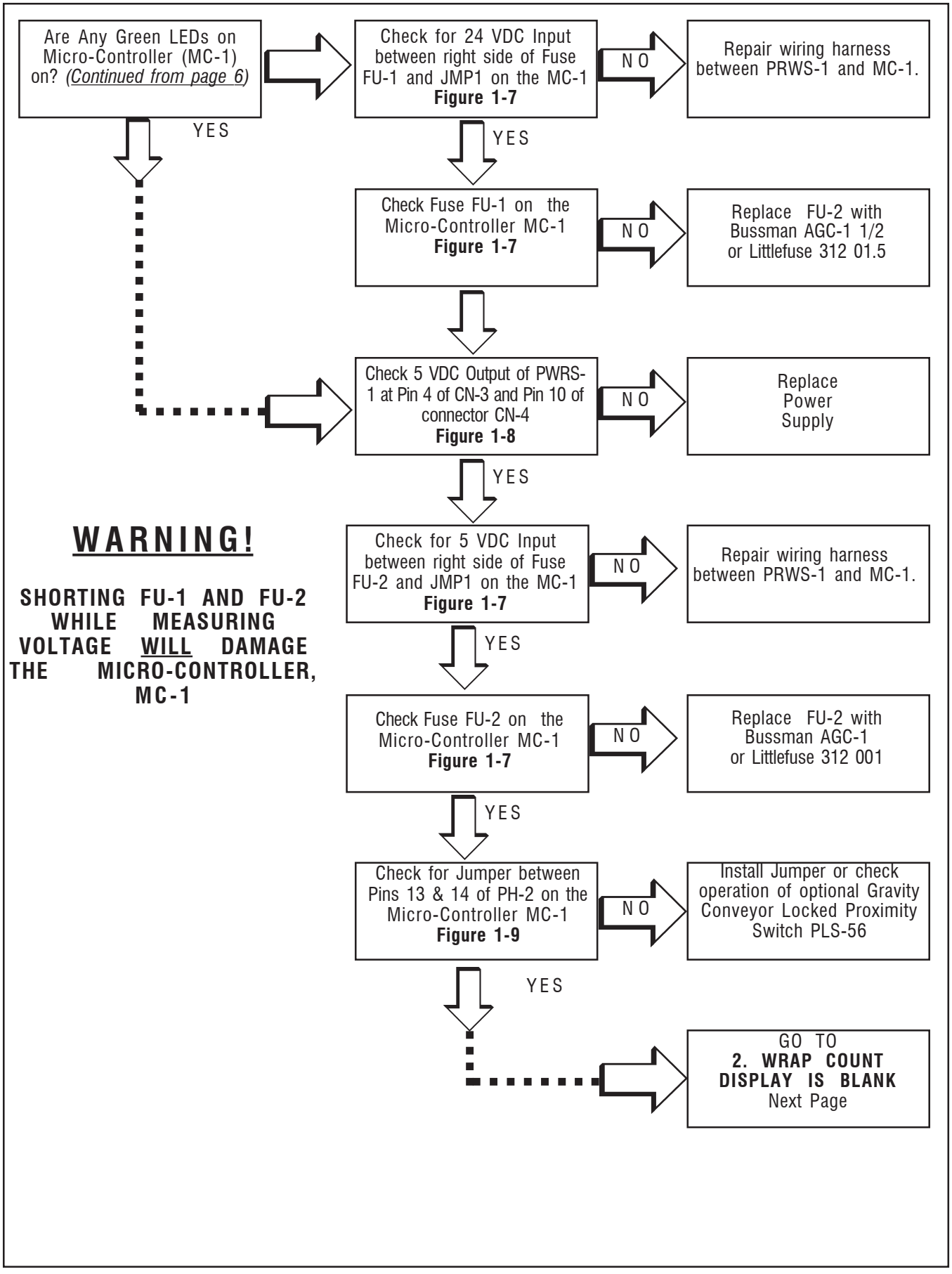


Figure 1-6
Terminal Block Detail

1. Machine does not power up continued



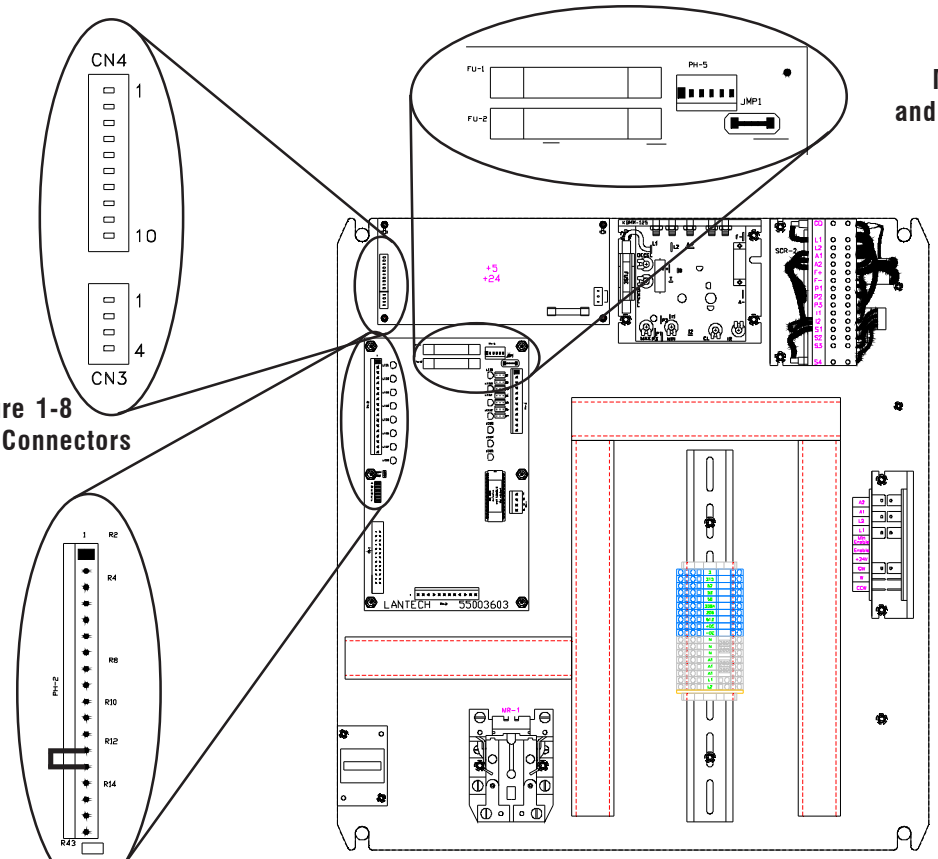


Figure 1-7
MC-1 Fuses and Jumper JMP1

Figure 1-8
PWRS-1 Connectors

Figure 1-9
MC-1 post header connector PH-2

2. Wrap Count display is blank

Press the Turntable Jog pushbutton on the Operator Control Panel. Did the turntable move?

NO

Check cable at CN-1 on MC-1 and bottom right connector on the Digital Display Board **Figure 2-1 and 2-2**

NO

Remove and securely reinsert the cable into each connector. Replace cable if damage is apparent

YES

Problem is most likely a nonfunctional Digital Display Board. Replace **Figure 2-1**

YES

Check for proper insertion of EPROM Chip, U8 on the MC- board. **Figure 2-3**

NO

If U8 appears to be inserted incorrectly or not present Contact your local Lantech Distributor.

3. Machine powers up but membrane functions do not respond.

Is cable from membrane panel to the Digital Display Board connected properly?

NO

Press the PRESETS button. Preset data should be displayed in the top and bottom wrap count window. **Figure 3-2**

NO

Remove and securely reinsert the cable into each connector. Replace cable if damage is apparent

YES

YES

Momentarily jumper the post pins labeled REM START on MC-1. Did machine start? **Figure 3-1**

NO

If the machine starts and runs, replace the membrane panel. If the machine does not run, replace the micro-controller MC-1.

4. Machine fails to start when the START button is pressed.

Observe the mode indicators at the top of the membrane panel. Is the CYCLE PAUSE mode LED illuminated?

NO

Momentarily jumper the post header pins labeled **REM START** on MC-1. Did machine start? **Figure 3-1**

NO

Replace the micro-controller MC-1.

YES

Press the CYCLE PAUSE pushbutton to cancel the CYCLE PAUSE mode. **Figure 3-2**

YES

Verify proper cable connection from the membrane panel to digital Display Board. Replace the membrane panel.

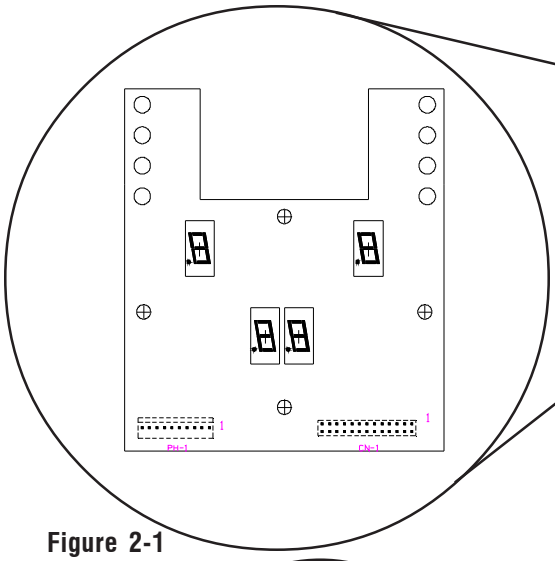


Figure 2-1
Display Board

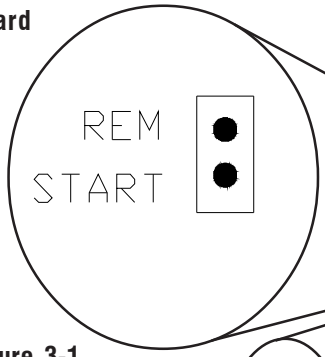


Figure 3-1
Remote Start Post Header Pins

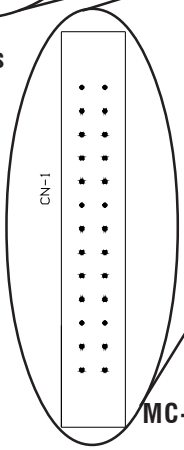


Figure 2-2
MC-1 Connector CN-1

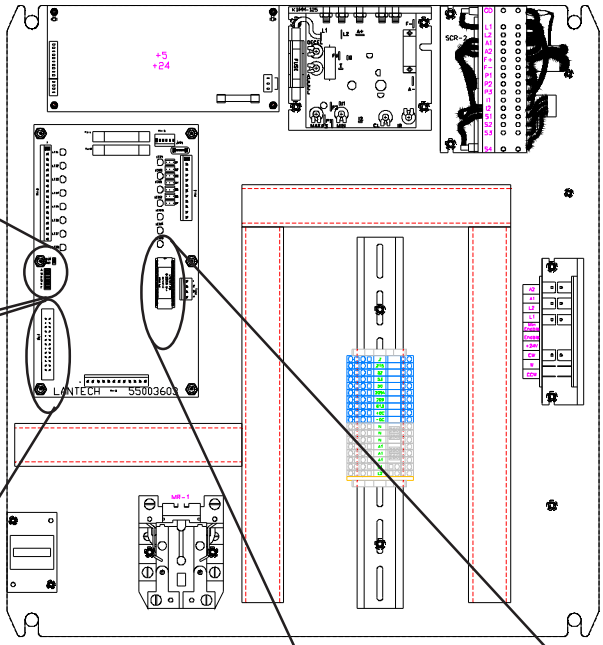


Figure 3-2
PRESETS pushbutton

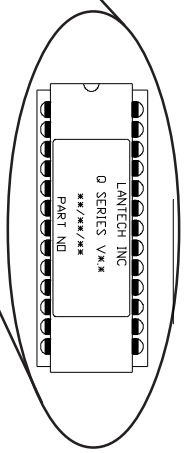


Figure 2-3
MC-1 U8 Logic Chip

5. Lighted Emergency Stop Pushbutton not illuminating.

Indicator light bulb in E-Stop button not functioning

Check for 115 VAC on wires L2 and N on the E-Stop button

N O

Check wiring and Emergency Stop contact block. Refer to electrical schematics.

Replace bulb with Telemecanique # DL1CE130, Lantech part no. S-006115. **Figure 5-1**

6. Machine Starts As Soon As The Emergency Stop Button Is Pulled Out.

"START" button on membrane panel failed

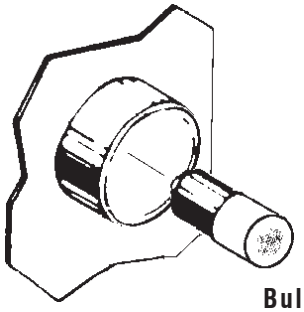
Check membrane panel with the following steps:
Unplug machine
Unplug the membrane panel flat cable from the bottom left corner of the Digital Display Board. **Figure 6-1**
Plug the machine back up.
Pull out the Emergency Stop button. Does the machine start immediately?

N O

Replace the membrane panel.

Replace Micro-controller MC-1.

Figure 5-1
Membrane and Bulb for optional Illuminated Emergency Stop



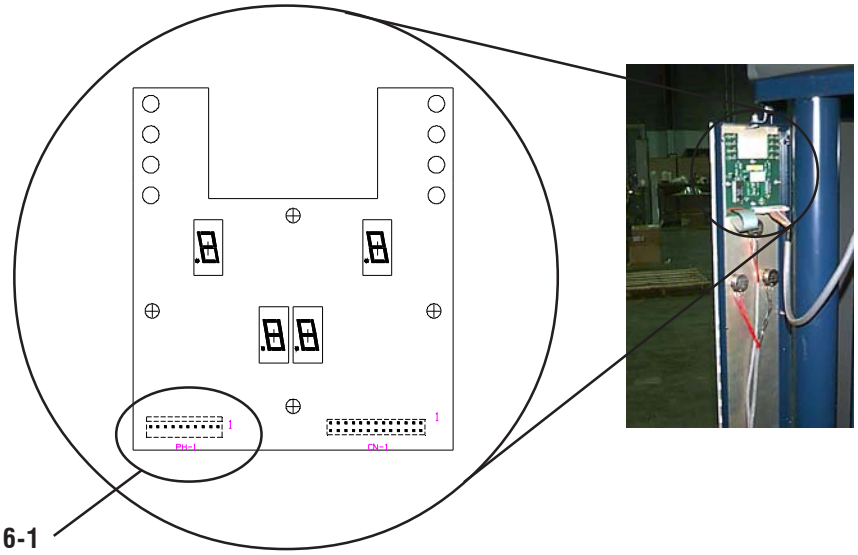
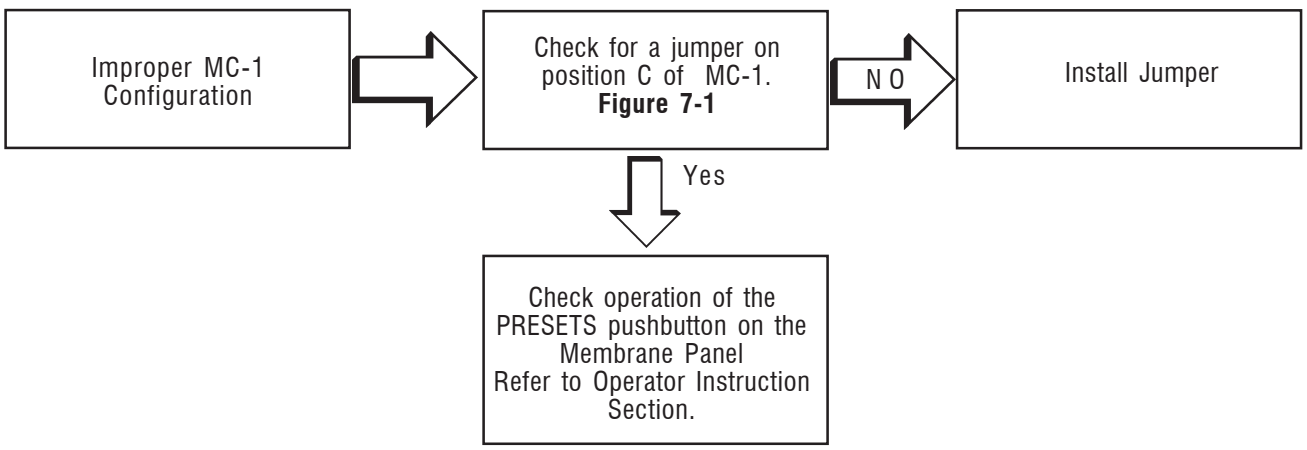


Figure 6-1
Membrane Panel Connector

7. Cannot Change The Machine Presets.



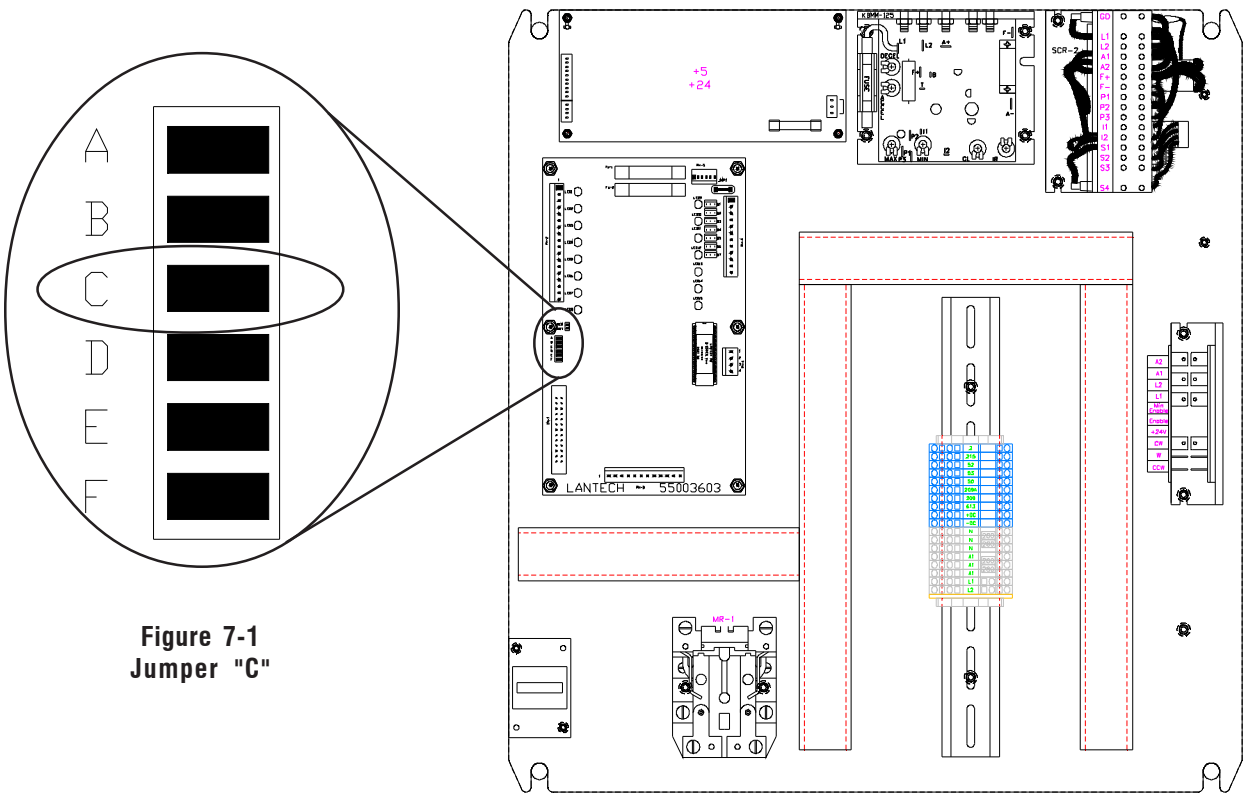
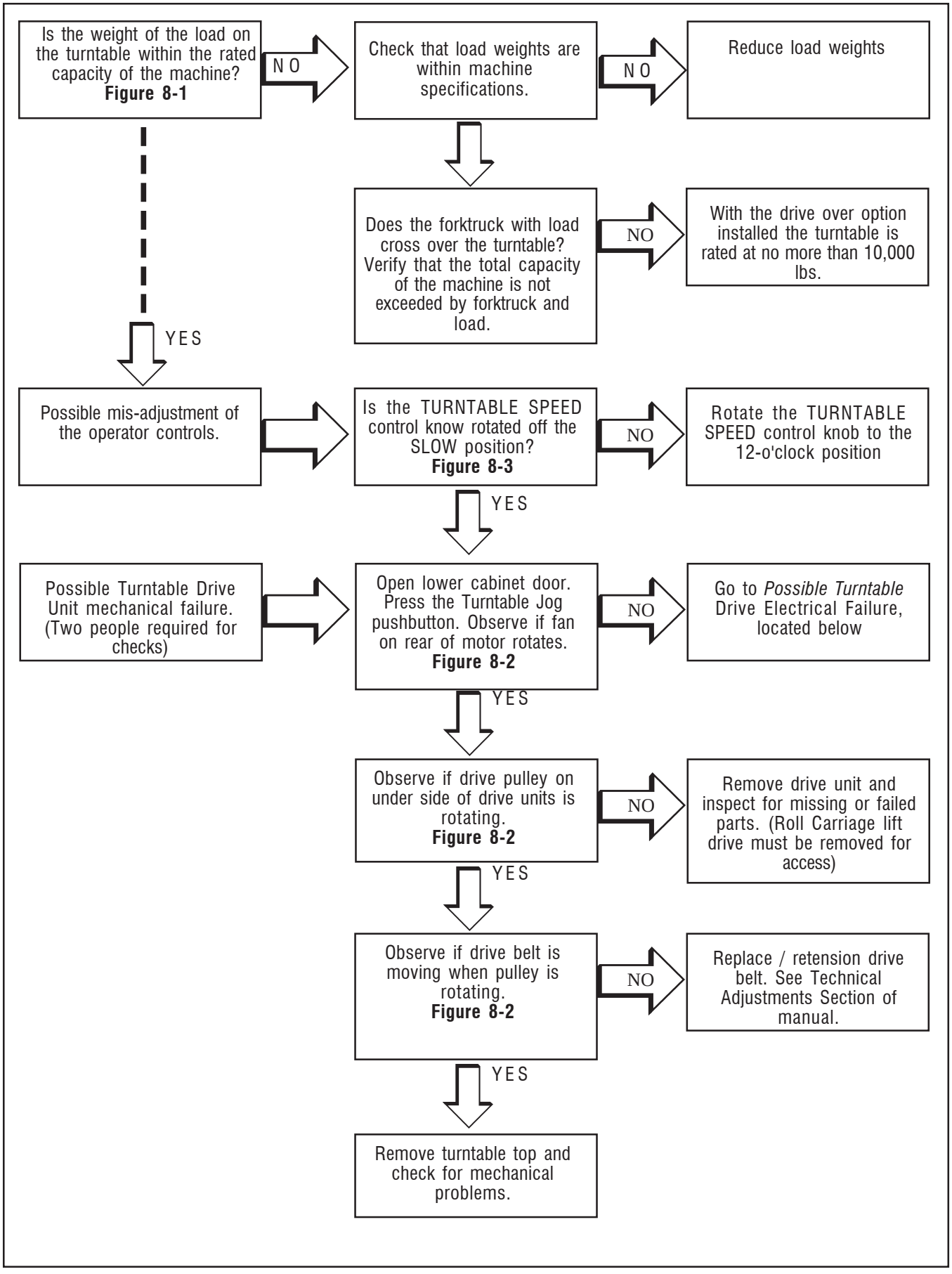


Figure 7-1
Jumper "C"

8. Turntable fails to rotate when the JOG button is pressed.



Q-Series Semi-Automatic Stretch Wrapper Weight Capacity Machine Model			
	Q-200	**Q-300**	**Q-400**
Standard	3500 lbs	4000 lbs	5000 lbs
Optional	4000 lbs	5000 lbs	
Optional	5000 lbs		

Figure 8-1
Turntable Weight Capacities (Q-Semi)

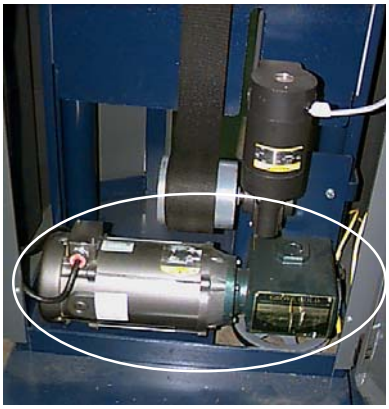


Figure 8-2
Lower portion of upright showing Turntable Drive and Pulley

Figure 8-3
Turntable Speed control knob (Yellow)

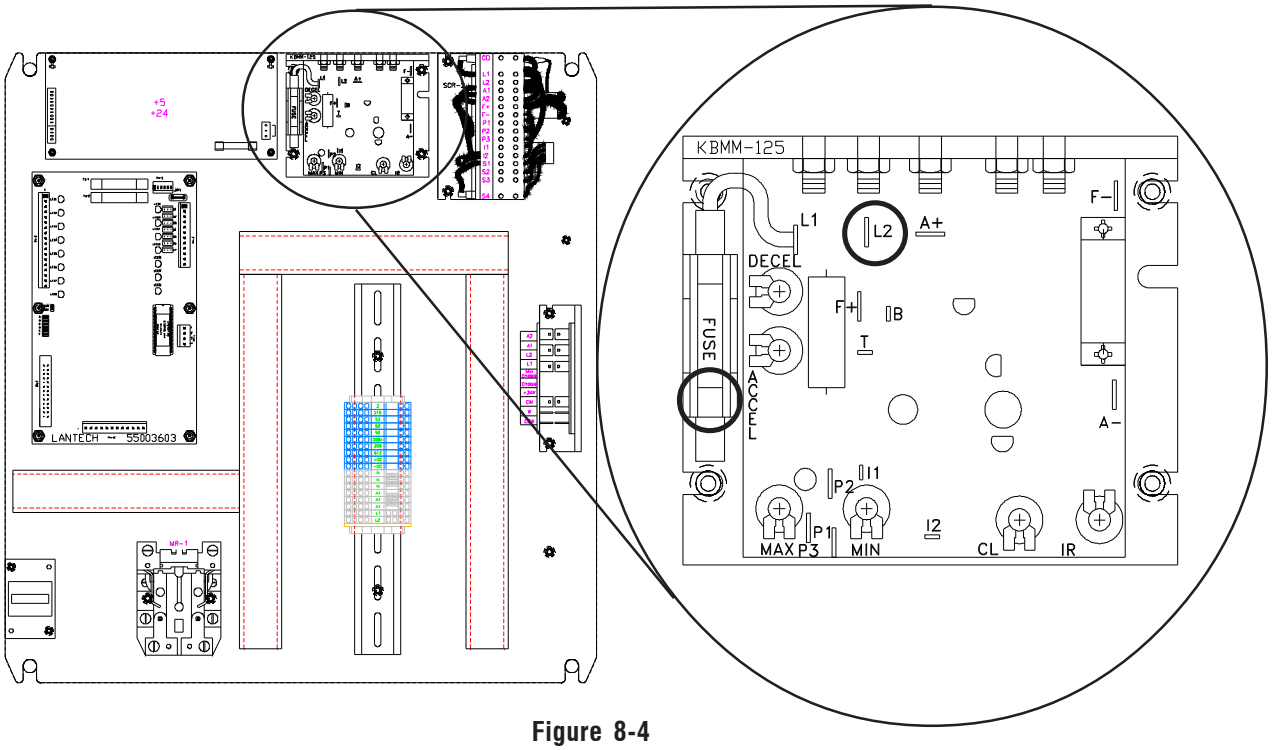


Figure 8-4
Turntable Motor Control Board (SCR-1)