



# Stretch Wrapper



How to install,  
use and maintain.

Series 3 Wrapper Users Manual

Stock Code : MANUALWS3

Revision History : Original Issue : 02/03/04

Revision A : 22/11/04

Revision B : 10/03/06

Revision C : 13/07/09

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# **1 INTRODUCTION**

The Easy Wrapper and Lo-Wrapper are basic Stretch Wrappers with the durability of more sophisticated machines, but without many of the expensive options. They are priced to suit workplaces with light to moderate stretch wrapping needs. These Wrappers are efficient and highly effective at preventing back strain and injury, which are the most common of all workplace injuries (1994, Worksafe Australia). They are designed to eliminate the dangerous and time-consuming practice of stretch wrapping by hand. As employers have become more aware of occupational health and safety, stretch wrapping by hand has become less and less viable.

The STS Stretch Wrapper range incorporates two Base types:  
Easy Wrapper and Lo Wrapper

And two Mast types:  
Manual Mast and Semi Automatic Mast

Either Mast can be fitted to either Base resulting in four basic models:

- Easy Wrapper Manual Mast
- Easy Wrapper Semi Automatic Mast
- Lo Wrapper Manual Mast
- Lo Wrapper Semi Automatic Mast

The film carriage is identical on all four models

The Semi Automatic Mast is available in two lengths, 2.65 metres and 3.2 metres. The standard length is 2.65 metres.

Please read this instruction manual carefully to ensure safe installation and use of your Wrapper. If you require further advice or assistance, please contact your local STS agent, or Safetech:

STS Pty Ltd  
PO Box 360  
MOE VIC 3825

Phone: **1800 674 566**  
Fax: (03) 5127 4431

Worksafe Australia (1994), The Compendium for Worker's Compensation Statistics 1991/92: Australian Government Publishing Services

## 2 SETTING UP

### 2.1 Easy Wrapper Base

- 1) Lift the Easy Wrapper from its shipping pallet with a forklift, placing the tynes in the fork sockets built into either end of the base of the Easy Wrapper.
- 2) Check that the Easy Wrapper sits securely on the floor and does not rock due to the floor not being flat. If so, the base can be shimmed or grouted or the floor flattened by grinding.

#### **IMPORTANT**

*The Easy Wrapper can be run unloaded whilst on its shipping pallet, but should not be loaded or used for wrapping whilst on its shipping pallet.*

*Do not run the Easy Wrapper with the mast in the down position, as this will result in damage to the mast.*

### 2.2 Lo Wrapper Base

It is essential for Lo-Wrapper to always remain flat. The Lo-Wrapper is shipped with three lifting lugs and can be lifted by crane or forklift using three slings or chains. Alternatively, a relocation frame is available from your STS agent for safe transport of the Lo-Wrapper within the plant and onto or off the shipping pallet. When relocating the Lo-Wrapper within the plant using the relocation frame, the mast can remain upright, but the ramp must be removed. The original shipping pallet must be used when freighting Lo-Wrapper to ensure adequate support. The mast should be laid down and secured to prevent damage.

#### **IMPORTANT**

*The Lo-Wrapper can be run unloaded whilst on its shipping pallet, but should not be loaded or used for wrapping whilst on its shipping pallet.*

*Lo-Wrapper must be kept horizontal. Never stand it on its edge.*

*Do not run the Lo-Wrapper until the relocation frame or lifting frame has been removed.*

*Never expose the Lo-Wrapper to moisture or wet environments. It is not designed for outdoors use or wash down. Evidence of moisture ingress will void warranty.*

*Do not run the Easy Wrapper with the mast in the down position, as this will result in damage to the mast.*

- 1) Check that the floor where Lo-Wrapper is to be positioned is flat, using a straight edge. There should be no more than 5mm variance over the length or width of Lo-Wrapper. Variances can be eliminated by grinding the floor flat or by using grouting.

### ***IMPORTANT***

*Do NOT attempt to level the floor using shims. It is important that the Lo-Wrapper is fully supported to prevent flexing, which may damage the machine.*

- 2) Lift the Lo-Wrapper from its shipping pallet using the lifting lugs or relocation frame.
- 3) Remove the Lifting lugs/relocation frame.
- 4) Bolt the Lo-Wrapper to the floor. Holes are provided around the perimeter. It is especially important to bolt down around the mast base to prevent excessive flexing which will damage the Lo-Wrapper.
- 5) The ramp can be fitted in one of three locations. After choosing the most convenient position, screw the ramp to the turntable, using the screws provided. Make sure that the fixing screws are screwed fully into the counter bores in the ramp. The heads should not protrude above the ramp. A second ramp may be fitted, usually opposite the first for roll on roll off operation (i.e.: in positions 1 and 3 as shown in the diagram). If the second ramp is to be located adjacent to the first, (i.e.: positions 1 and 2 or 2 and 3) the ramps must be modified to allow them to be fixed to the turntable base.

## **2.3 Manual Mast**

The Mast is heavy (approx. 35 kg). The Wrapper is shipped with the Film Carriage Assembly removed from the Carriage Trolley. The trolley will be at the top of the Mast, hence the counterweight is at the bottom. With the help of an assistant stand the Mast by following the steps below.

1. Remove fasteners (4 off) screwed into the Base behind the Mast pivot.
2. Remove Nyloc Nuts (4 off) & Washers on Carriage Trolley.
3. Stand the Mast.
4. Replace and tighten the fasteners to secure the Mast to the Base.
5. Undo the Counterweight Locking bolt from the rear of the Mast. The bolt is identified with a tag labelled "Remove before use".
6. Pull the Carriage down then hold it steady by holding the Mast Strap
7. Place the Film Carriage Assembly onto Carriage Trolley, replace and tighten Nyloc Nuts and Washers.
8. Lock Carriage down by rotating Lock over Handle.
9. Remove Cable Ties holding Tension Arm to Film Spindle.

Note: If the Mast is laid down for transport, the counterweight must be at the bottom of the Mast and the Locking Bolt fitted.

## 2.4 Semi-Automatic Mast

The Semi-Automatic mast is supplied complete with an electrical control panel incorporating touchpad controls and microprocessor, built into the chain cover on the side of the mast.

The Mast is heavy (approx. 35 kg). The Wrapper is shipped with the Film Carriage Assembly removed from the Mast Carriage. With the help of an assistant stand the Mast by following the steps below.

1. Remove fasteners (4 off) screwed into the Base behind the Mast pivot.
2. Remove Nyloc Nuts (4 off) & Washers on Mast Carriage.
3. Stand the Mast.
4. Replace and tighten the fasteners to secure the Mast to the Base.
5. Place Film Carriage Assembly onto Mast Carriage, replace and tighten Nyloc Nuts and Washers.
6. Remove Cable Ties holding Tension Arm to Film Spindle.

## 2.5 Motor Direction

If the Wrapper is designed for three phase power, check that the turntable rotates in the correct direction. It should rotate clockwise if viewed from above. If the turntable does not rotate in the correct direction, contact an electrician. The electrician can reverse any two phases, either at the plug or at the motor. If the Wrapper has a Semi-Automatic mast, the phases should be reversed at the plug. This will correct motor direction for both the turntable and mast motors.

### **WARNING!**

*Do not attempt to work on the electrical components unless you are a qualified electrician. You may be severely injured or killed.*

*Do not expose electrical components to moisture. Evidence of moisture ingress will void warranty*



## 2.6 Air Motor Setup and Operational Recommendations (where fitted)

The Air Motor Wrapper is fitted with a Gast® 4AM Vane air motor that requires the air supply to be filtered & lubricated. An airline filter & lubricator should be fitted in the air supply line and located before the first control valve of the system.

### **a) Airline Filtration**

Use 5 Micron filter or better.

The airline filter should be drained regularly and the element examined for signs of clogging.

### **b) Airline lubricator**

The automatic airline lubricator should be replenished as required and set to give the following drop rate/min. for normal ambient temperatures 0°C to 32°C, with oil supplied from a reputable supplier which meets Gast 4AM recommendations. (ie. Gast #AD220 or SAE 10W high detergent or non-detergent motor oil)

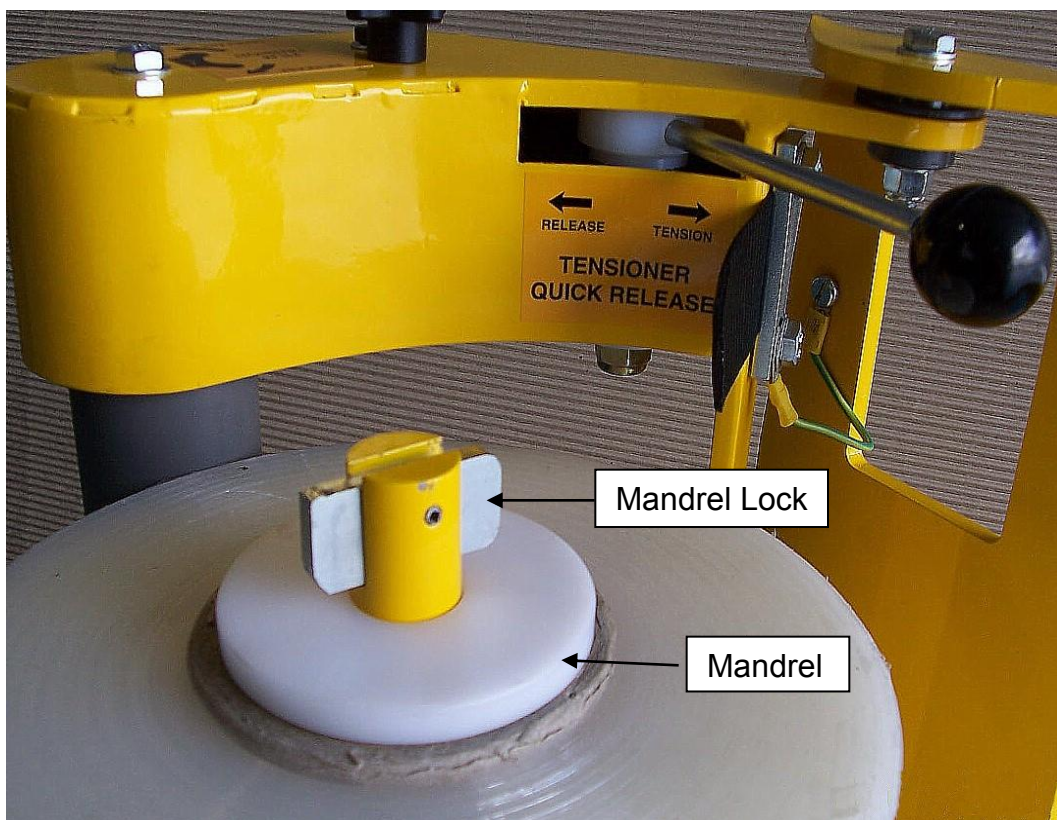
For Air Motor supplied:-

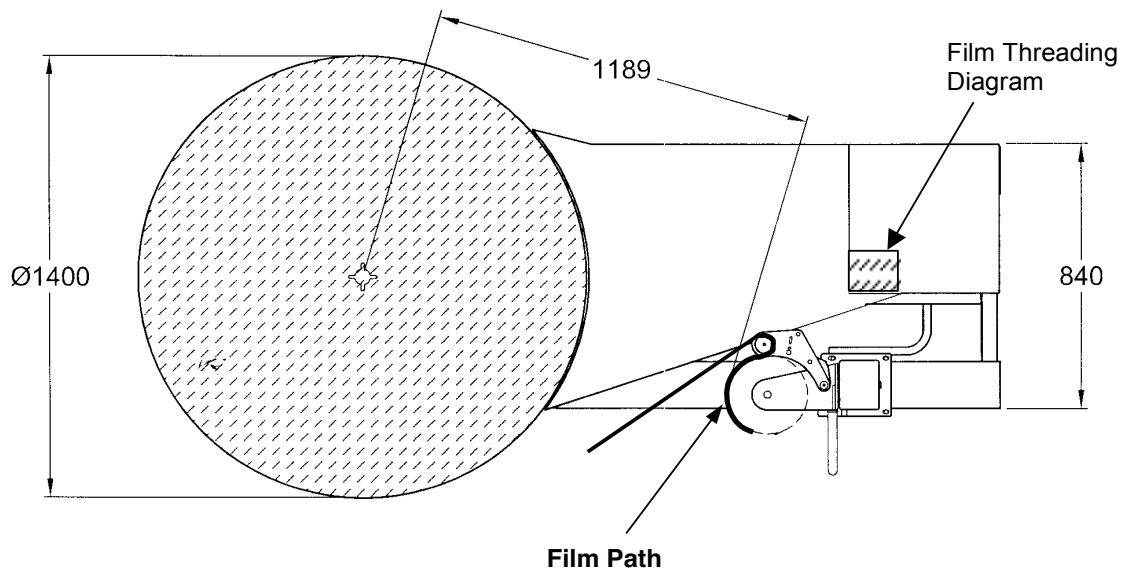
<b>Continuous Operation</b>	<b>Intermittent Operation</b>
1 drop of oil per minute	1 drop of oil every 25l/s, while unit is running

NOTE: INSTALL THE AIRLINE LUBRICATOR ON THE SAME LEVEL OR ABOVE THE AIR MOTOR, SO THAT THE OIL MIST WILL BLOW DIRECTLY INTO OR FALL DOWN INTO THE MOTOR.

### 3 INSTALLING OR CHANGING FILM ROLLS

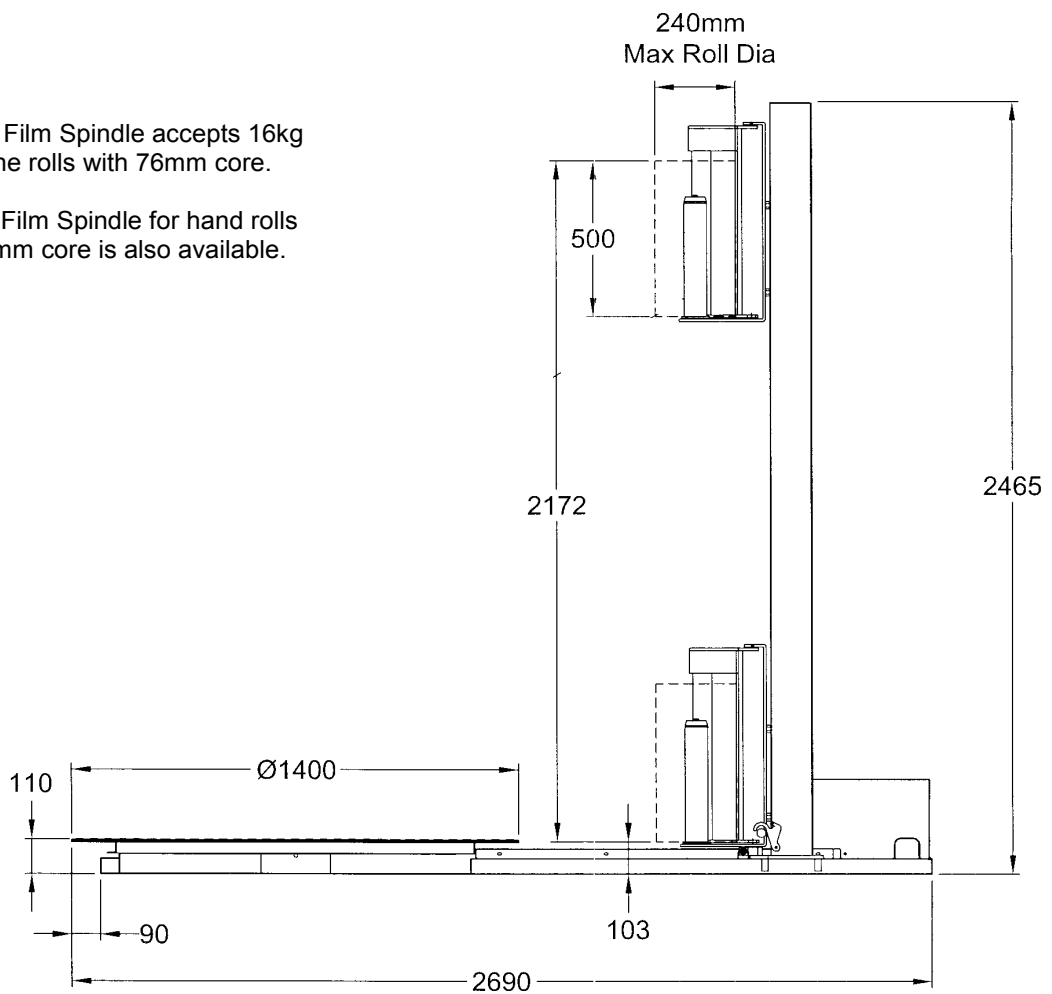
1. For Manual Masts, lock the film carriage at the base of the mast using the latch fitted to the mast base. Semi-Automatic Mast Carriages do not need to be locked.
2. Swing the Tension Roller Arm clear of the Film Spindle.
3. Remove the top film mandrel by lifting the mandrel lock to the vertical position.
4. Position the new film roll over the lower film mandrel. The film roll must be oriented correctly and the film threaded behind the Tension Roller as per the diagram on the Motor Cover and on the following pages.
5. Refit the top film mandrel and rotate the mandrel lock to the horizontal (locked) position (see picture below).
6. Having replaced the roll on the Manual Mast, unlock the film carriage while holding onto the handle and resume wrapping.



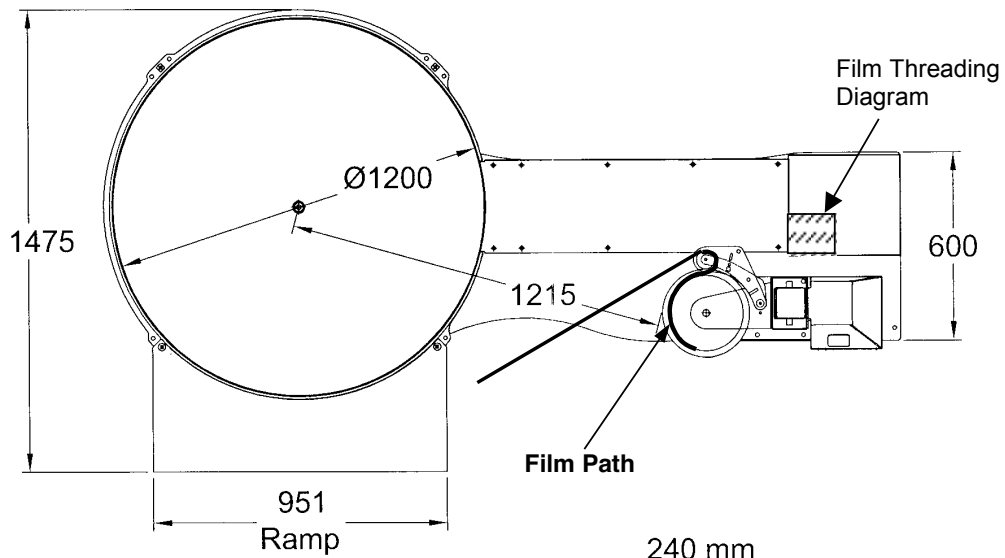


Standard Film Spindle accepts 16kg machine rolls with 76mm core.

Optional Film Spindle for hand rolls with 51mm core is also available.

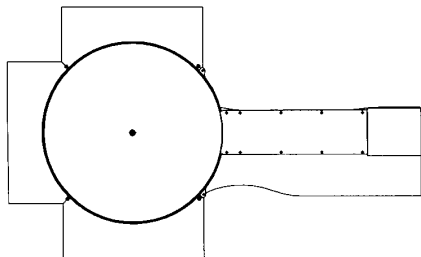


Easy Wrapper Manual configuration

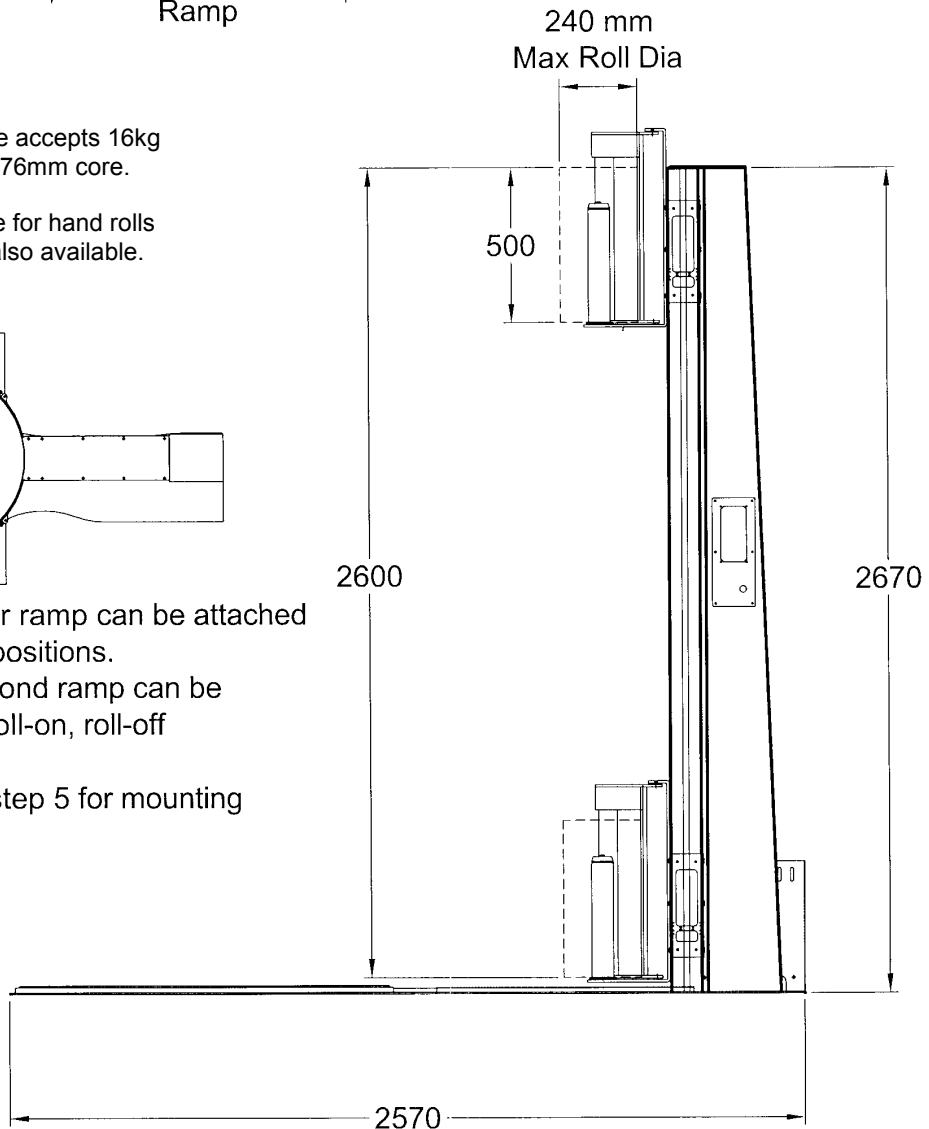


Standard Film Spindle accepts 16kg machine rolls with 76mm core.

Optional Film Spindle for hand rolls with 51mm core is also available.



The Lo-Wrapper ramp can be attached in any of three positions. An optional second ramp can be purchased for roll-on, roll-off configuration. See Section 2 step 5 for mounting limitations.



Lo-Wrapper Semi Auto configuration

## 4 OPERATION

### 4.1 Film Tension

Check that the correct tension is applied to the film. Tension can be adjusted by rotating the Film Tension knob on the top the Tension Roller Arm assembly. The film tension can be released via the Tensioner Quick Release lever. The Film Tension knob may be adjusted during the wrapping to achieve the required tension.

### 4.2 Wrapping Loads – Manual Mast

- (1) The Wrapper has a load capacity of 2000 kg. Do not exceed this loading capacity or damage to the machine may occur. A "dead man" type foot switch is used to control the Wrapper. This means that the turntable will stop rotating as soon as the operator releases the pedal.

#### **WARNING!**

*Do not use Wrapper with broken or damaged pallets. Broken pallets may have boards or nails which hang down below the bottom part of the pallet. As the pallet rotates, these boards or nails may catch on the belt/chain cover. This can cause the pallet to stop turning suddenly and the load to shift. You may be injured and the machine may be damaged.*

- (2) Once the pallet is positioned on the turntable, attach the film to the pallet.
- (3) Hold the film carriage at the bottom of the mast so that the bottom of the load will be wrapped.
- (4) Press the foot switch. The turntable will begin to rotate.
- (5) Slowly move the film carriage up the mast to apply the film as required.
- (6) When wrapping is complete, release the foot switch.
- (7) Break the film and remove the wrapped pallet load.

#### **WARNING!**

*Be careful not to release the film carriage when it is positioned at the base of the mast. The carriage may strike the top of the mast at speed and cause damage to the Wrapper and possibly injure the operator.*

### 4.3 Wrapping Loads – Semi-Automatic Mast

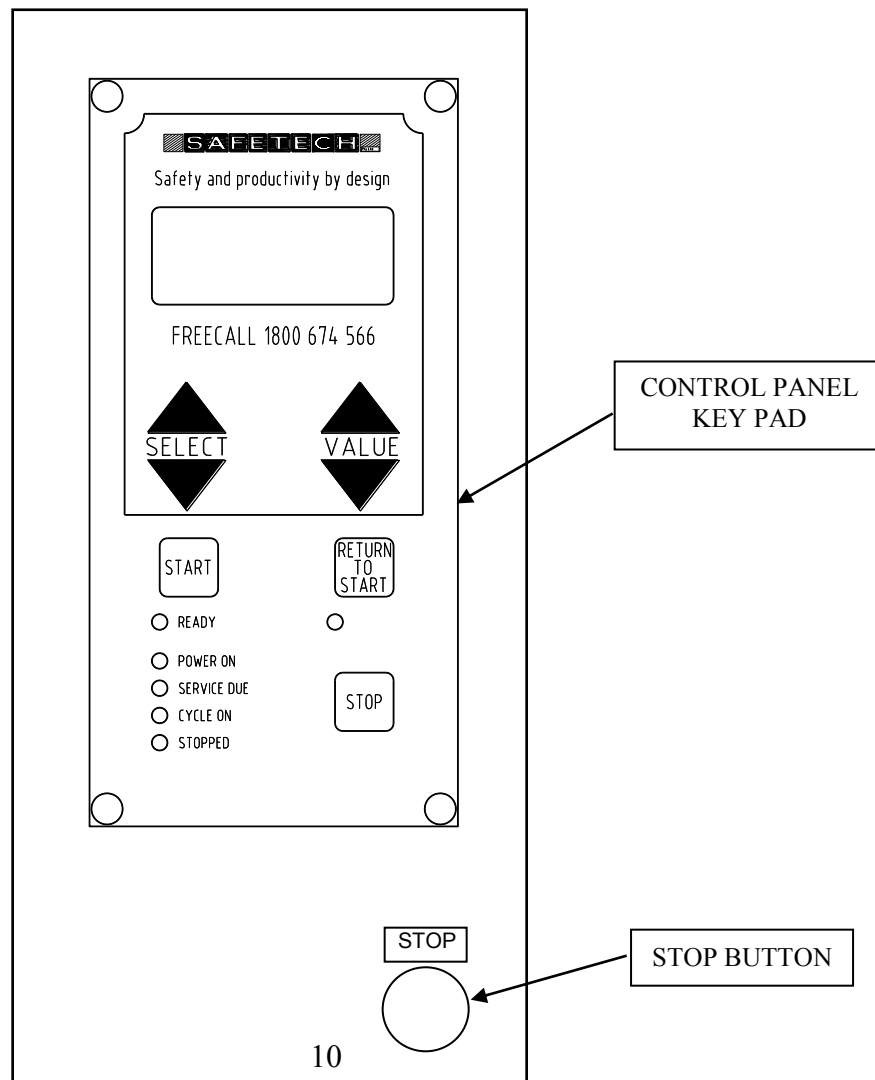
The Semi-Automatic mast reduces the amount of time needed to supervise the wrapping - just tie the film to the base of the pallet, set the controls and walk away. The Wrapper will wrap the load and stop when finished. The operator needs only to cut the film and remove the load.

The Semi-Automatic mast features a control panel mounted on the side of the mast, incorporating a touchpad, LCD display and microprocessor. Solid state motor control switchgear is housed in an enclosure located beneath the turntable motor cover.

The mast incorporates travel limit switches (magnetically activated reed switches) located beneath the chain cover and a proximity switch mounted at the base of the mast that detects carriage travel. The microprocessor uses this information to automatically control the mast and turntable motions.

#### 4.3.1 Control Panel Functions

The control panel incorporates seven keys, six indicator LEDs (light emitting diodes) and the LCD display. A drawing of the control panel and description of the functions follow.



### (1) Stop Button

The raised head Stop button allows the operator to turn on and off the power to the Wrappers control system. Pressing the button will cut power, rotate the button to turn the power on.

Note: The stop button does not isolate the main power to the Wrapper. To isolate for maintenance, unplug the power cable.

### (2) Select and Value

The "Select" and "Value" keys allow the operator to select the required wrapping parameters and to access cycle count information.

The "Select" keys allow the operator to scroll up and down the display to select the "Active" line. The "Value" keys allow the value of the active line to be changed. For multi value parameters (eg: pallet height) holding one of the "Value" keys will automatically scroll the value, slowly at first and then more quickly. The value will stop scrolling when the key is released.

By selecting the appropriate "Active" line with the "Select" keys, the "Value" keys are also used to change displays. See section 4.3.2.

### (3) Start

When the machine is "Ready", pressing "Start" will begin a wrapping cycle. The Wrapper is ready when the "Ready" LED indicator light is illuminated. See section 4.3.3.1.

When a wrapping cycle begins, the "Ready" LED goes out and the "Cycle On" LED illuminates. When the cycle is complete, the machine stops, the "Cycle On" LED goes out and the "Stopped" LED illuminates.

### (4) Return to Start

To begin wrapping, the carriage must be at the "Home" position. To accommodate this, the "Return to start" function is provided. Pressing "Return to start" will return the carriage to the bottom of the mast, then up to the minimum height ("Min H") without the turntable rotating. This is known as the "Home" position. During the "Return to start" motion, the "Return to start" LED will illuminate. The LED will go out when the carriage reaches the bottom of the mast and the "Stopped" LED and "Ready" LED will illuminate.

The "Return to start" function will be required when:

- (a) The previous load was set to "Half cycle", in which case the carriage will have stopped at the top, or;
- (b) A wrapping cycle is aborted and you wish to start again, or;
- (c) When power is interrupted and re-applied, or;
- (d) A "Safety timer" is activated (see section 4.3.5)

#### (5) Stop Key

Pressing the "Stop" key at any time will immediately stop the turntable and mast carriage. The "Cycle On" LED or "Return to Start" LED will go out and the "Stopped" LED will illuminate.

If "Stop" was pressed during wrapping, pressing "Start" will cause the Wrapper to resume at the point where the cycle was interrupted. If "Stop" was pressed during the carriage's return to start, or if you want to abort the wrapping cycle, press "Return to Start" to reactivate.

#### (6) LCD Display

The liquid crystal display (LCD) indicates the wrapping parameters as selected by the operator, using the "Select" and "Value" keys. The display also indicates the status of the machine during operation.

#### (7) Power on LED

The "Power On" LED illuminates whenever power is supplied to the machine.

#### (8) Service Due LED

The "Service Due" LED illuminates periodically, indicating that the machine should receive service. It will illuminate after the first 500 cycles and at intervals of 2500 cycles thereafter. After service, the "Cycles from service" counter should be reset as follows:

- (1) Turn off the power, by pressing the Raised Head "Stop" button.
- (2) Press and hold the "Stop" key whilst re-applying the power. Continue to hold the "Stop" key until "Clear Counter" appears on the display.
- (3) Release the "Stop" key.

The "Service Due" LED will no longer be illuminated. This procedure also resets the



"Cycles from Service" display described in section 4.3.2.4.

### 4.3.2 Selecting Wrapping Parameters

By using the "Select" and "Value" keys, a variety of wrapping parameters may be selected. Five different displays are accessed using ~~using~~ the "Select" and "Value" keys. They are:

(1) Operate

```
➤ OPERATE  SET:1
  HEIGHT:  1100 mm
  CYCLE:    FULL
  TOP: 1    BOT: 1
```

(2) Set-up

```
➤ SETUP1/TTCREEP
  HEIGHT: EYE
  MIN H:   101mm
  EYE DELAY: 2 sec
```

(2a) Hidden Set-up

```
➤ OVERSHOOT: 152 mm
  ROLL W:   495 mm
  TP: 001  MP: 172 S
```

(3) Stats

```
➤ STATS
  CYCLES FROM
  SERVICE: 100
  TOTAL:   5600
```

(4) Manual

```
➤ MANUAL
  PRS START FOR TT
  SELECT ↑ FOR UP
  SELECT ↓ FOR DWN
```

In any display, the cursor (arrow) can be scrolled up or down using the "Select" keys as described in 4.3.1. When the cursor is in the top left hand corner of the screen, the "Value" keys are used to select another display.

#### 4.3.2.1 Operate Mode

When power is applied, the machine 'wakes up' with the display showing:

```
STS PTY LTD
STRETCH WRAPPER

VERSION AF10-#
```

then

```
➤ RETURN TO START

MANUAL
```

# = 1-9, or A-Z

Press the "Return to Start" key. If not there already, the carriage will drive to the

"Home" position and stop. Alternatively move the cursor to "MANUAL", then press the "Start" key to go to the manual screen, as described in 4.3.2.5. The display will then revert to the "Operate" mode as shown:

➤ OPERATE	SET:1
HEIGHT:	1100 mm
CYCLE:	FULL
TOP: 1	BOT: 1

By pressing the "Select" keys, the cursor can be moved adjacent to any line, indicating that line as active. The "Value" keys can then be used to change the value of the active line as required.

In "Operate" mode, the following parameters can be set:

(i) Set

"Set" allows five different wrapping configurations to be stored for quick recall. This is achieved by, selecting a particular set (eg set 2) then changing the wrapping parameters under the "Operate" and "Set-up" displays to the desired values. Once the "Start" key is pressed (ie to wrap that pattern) the wrapping parameters will be saved in the selected set for future use.

(ii) Height

"Height" sets the total height (including the pallet) of the load to be wrapped. The display reads in millimetres and increments in steps of 12 to 13mm. Holding down one of the "Value" keys will scroll the height value, slowly at first, then quickly.

To measure the height, refer to the graduated scale on the side of the mast chain cover. With the load on the turntable, the height can be read directly off the scale and keyed in.

The height value determines how far the carriage will travel up the mast. The processor is programmed to slightly overshoot the top of the load to allow some film to overlap the top of the load. This overshoot can be adjusted in "Hidden Setup" mode and is described in section 4.3.2.3 (i). If the optional photo eye load height sensing is used, (section 4.3.4) the load height does not need to be keyed in.

(iii) Cycle

"Half cycle", "Full cycle" or "Top Sheet" can be selected. If "Half cycle" is selected, the Wrapper will apply the bottom wraps before the carriage will travel to the top of the load, wrapping the load in a spiral pattern, apply the top wraps and stop. Press "Return to start" to return the carriage to the Home position.

If "Full cycle" is selected, the Wrapper will apply the bottom wraps, then the carriage will travel to the top of the load, wrapping the load in a spiral pattern and apply the top wraps. The carriage will then travel to the bottom of the load, applying a second spiral layer and stop at the bottom of the mast.

If "Top Sheet" is selected, the Wrapper applies bottom wraps, the carriage drives to the top of the load, and then the carriage and turntable both stop. The operator can fit a top sheet and then press START. The turntable starts, applies the top wraps, wrapping in the top sheet, the carriage drives down and the cycle completes as per a normal full cycle.

(iv) Top

One to five full turns of film at the top of the load (top wraps) can be selected.

(v) Bot

One to five full turns of film at the bottom of the load (bottom wraps) can be selected.

#### 4.3.2.2 Setup mode

The "Setup" mode display is shown below:

➤ SETUP1/TTCREEP HEIGHT: EYE MIN H: 101mm EYE DELAY: 2 sec
---

In "Setup" mode, the following parameters can be set:

(i) Input

The input parameter can be set to either "Key In" or "Eye". When "Key In" is selected, the carriage travel is determined by the height parameter as described in section 4.3.2.1 (i).

When "Eye" is selected, the optional photo-eye load height sensor, described in 4.3.4 determines the carriage travel. EYE DELAY is only displayed if the height input is set to EYE.

If the Wrapper is fitted with the photo-eye load height sensing option, "Key In" or "Eye" can be selected as the Height input parameter. If a photo-eye is not fitted, "Key In" must be selected.

(ii) Min H (minimum height)

This is the height from the top of the turntable to the bottom of the film. Any value down to 38mm can be keyed in. The default value is 101mm.

(iii) Eye Delay

This is the duration for which the photo-eye must not see the load before it registers the top of the load. Values from 0 to 9 seconds can be keyed in. The default value is 2 seconds.

4.3.2.3 Hidden Setup mode

Press and hold VALUE UP during power up to access the Hidden Setup screen. The "Hidden Setup" mode display is shown below:

➤ OVERSHOOT: 152 mm
ROLL W: 495 mm
TP: 002 MP: 172 S
TT STOP: 180

In "Hidden Setup" mode, the following parameters can be set

(i) Overshoot

Controls the amount of overlap applied to the top of the load, with a keyed in height. Default value is 152mm.

(ii) Roll W (Roll Width)

The actual film width should be keyed into this parameter. The machine "wakes up" with this parameter set at 495mm as this is the width of most machine rolls of film. Values from 300mm to 600mm can be accepted.

(iii) TP (Turntable Prox)

Sets the control system to suit the number of prox flags on the turntable. Acceptable keyed in values accepted are: 0, 1, 2, 4, 72, or 288. 1 is for Easy Wrapper, 288 for Lo Wrapper, 2,4 and 72 are for other STS Wrapper options.

(iv) MP (Mast Prox):

Sets the control system to suit the number of prox pulses registered if the carriage travels the full length of the mast. Any value from 100 to 255 can be keyed in but the number scroll will "detent" to 159J (for JMP STP), 172S (2.65m mast) or 215L (3.2m mast)

TP and MP are the two fundamental parameters that configure the software for Lo or Easy Wrapper and for short or long mast.

(v) TT STOP: (Turntable Stop)

Allows the stopping position of the turntable (in relation to the start position) to be predetermined.

When TP: is set to 2, TT STOP options are 180° and 360°.

When TP: is set to 4, TT STOP options are 90°, 180°, 270° and 360°.

When TP: is set to 72, TT STOP can be incremented from 0 to 360° in 5° increments

When TP: is set to 288, TT STOP can be incremented from 0 to 360° in 1.25° increments.

With TP: 72 or 288, the 5° or 1.25° increments equate to one prox flag. These increments can be used to allow for run on of the turntable and fine tune its stopping position. The default TT STOP value is 350°.

With TP: 1, 2 or 4, this fine tuning is not possible and not necessary as the start position of the next cycle is referenced to the stopping flag of the previous cycle. If the load on the turntable is constant, the run on should be fairly constant and the turntable will stop in about the same position.

With TP: 0 or 1, TT STOP is not displayed.

To exit the hidden screen, Press START.

#### 4.3.2.4 Stats mode

The "Stats" mode display is shown below:

➤ STATS CYCLES FROM SERVICE: 100 TOTAL : 5600
--

In "Stats" mode, the following parameters are displayed:

(i) Cycles from service

Indicates how many wrapping cycles have been performed since the machine was last serviced and since its "Cycles from service" counter reset. Periodically, the "Service due" LED will illuminate, indicating that service is due. See section 4.3.1(8) and section 5.

(ii) Total (Total cycles)

Indicates the total number of wrapping cycles in the life of the machine. This count cannot be reset by the user. Upon receipt of your new STS Wrapper, you may observe a count indicated on both counters. This is due to the testing procedures for the electronics and the mechanical testing of the machine.

#### 4.3.2.5 Manual mode

The "Manual" mode display is shown below:

➤ MANUAL PRS START FOR TT SELECT ↑ FOR UP SELECT ↓ FOR DWN
---

The manual screen allows both turntable and carriage to be operated independently or simultaneously and can be used for wrapping if required.

To run the carriage independently from the turntable press and hold either select key to drive the carriage up or down.

To run the turntable and carriage together, momentarily press the start key to run the turntable. The turntable will run until stop is pressed. Then press and hold either select key to drive the carriage up or down. This way a load can be "manually" wrapped.

If the carriage is moved whilst the turntable is running, the cycle counter will be incremented by 1 when the turntable is stopped. If the turntable is run and stopped without moving the carriage or if the carriage is moved with the turntable stationary, the cycle counter does not increment.

If "Return to start" is pressed whilst in manual, both the carriage and turntable will drive to home position. The carriage will drive to the bottom limit, the turntable will rotate to its start position, and then the carriage will drive up to the "Home" position.

#### 4.3.2.6 Motion in Progress

The "Motion in Progress" display is shown below:

OPERATE	MP: 123
ROTATE	TP: 002
	TLIM: 0
BOTTOM	BLIM: 0

During a cycle or during return to start or manual carriage motion, the motion in progress screen is displayed. This screen displays what function or part of the cycle is in progress and the status of all the field inputs. This screen will be invaluable for trouble shooting.

In "Motion in Progress" display, the following parameters are shown:

OPERATE indicates cycle in progress. This can also say FINDING HOME to indicate return to start function or MANUAL to indicate operation from the manual screen.

ROTATE and BOTTOM indicate the actual motion or part of cycle in progress. This can also say TOP (top wraps), UP (carriage up), DOWN (carriage down), SHEET (top wraps in top sheet pattern), TTHOME (turntable home), FINISH (final rotation of turntable). When wrapping with EYE as the height input, can also say LOAD (photo-eye sees load), changing to TOP as the photo-eye detects top of load.

MP indicates actual mast prox count.

TP indicates actual turntable prox count. With Easy Wrapper, the TP value will continue to increment with each revolution. With Lo-Wrapper, TP value will count from 1 to 288, 1 to 288 etc.

TLIM indicates status of top limit, displays O for open and C for closed

BLIM indicates status of bottom limit, O or C. Limit is closed when the carriage is at the limit.

#### 4.3.2.7 Pause Function

During a cycle, if either select or value key is pressed, the carriage will stop whilst the key is held but the turntable will continue to run. This allows extra film to be applied to the load. When the carriage is stopped, PAUSE is displayed (flashes) in the motion in progress screen. The carriage motion will resume when the key is released (after a brief delay).

### **4.3.3 Normal Operation**

#### **4.3.3.1 Machine "Ready"**

The "Start" key will only initiate a wrapping cycle if the machine is "Ready", indicated by the "Ready" LED. The machine will not be ready in the following circumstances:

- (i) when power is interrupted and reapplied, or;
- (ii) the previous load was wrapped on "Half cycle", in which case the carriage will have stopped at the top, or;
- (iii) a "Return to start motion" was aborted by pressing "Stop".

In either case, press "Return to Start". The carriage will travel to the bottom limit, then travel up to the minimum height setting. This is known as "Home" position. During "Return to Start" travel the Motion in Progress display will say "FINDING HOME".

When the carriage reaches "Home" position, the "Ready" LED will illuminate and the display will revert to "Operate" mode.

#### **4.3.3.2 Wrapping a load**

- (1) If necessary, press "Return to Start" to achieve the "Ready" condition as described above.
- (2) Load the pallet and attach the film.
- (3) Set the parameters, including "Set", "Cycle", "Top Wraps" and "Bottom Wraps".
- (4) If the Height was selected as an input parameter in the Setup display, measure the load height or read the height off the scale on the chain cover and set this as the "Height" value.
- (5) Press "Start". The wrapping cycle will begin. The "Cycle On" LED will illuminate and the Motion in Progress be displayed. At the end of the cycle the following display will be shown and a beep will sound:

WRAPPING CYCLE  
COMPLETE

- (6) The Film Tension knob may be adjusted during the wrapping to achieve the required tension.



- (7) When the pallet is wrapped, the turntable will stop and the "Cycle On" LED will go out.
- (8) Break the film and remove the pallet.

If "Half Cycle" was selected the following display will be shown at the end of the cycle:

PRESS RETURN  
TO START  
TO CONTINUE

If "Top Sheet" was selected the following display will be shown at the top of the cycle:

TOP SHEET  
START TO CONTINU  
OR RETURN TO  
START TO CANCEL

#### 4.3.4 Photo Eye Height Sensing Option

Photo eye load height sensing is available as an option for the Semi-Auto Mast. This option eliminates the need to measure and key in the load height. The photo eye detects the top of the load and controls the carriage travel accordingly.

##### 4.3.4.1 Wrapping a load

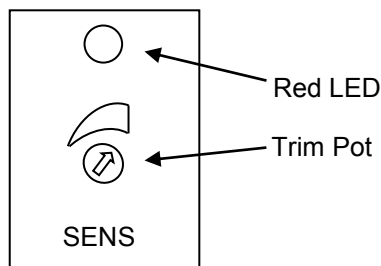
To wrap a load using the photo eye option, follow steps one to nine of section 4.3.3.2, noting that "Eye" must be selected as the input parameter as described in section 4.3.2.2.

The photo eye will detect the top of the load and control the carriage travel accordingly. The processor is programmed to travel slightly beyond the top of the load to allow some film to overlap the top of the load as described in section 4.3.2.2. The amount of overlap can be adjusted by varying the Eye Delay keyed in as described in section 4.3.2.2.

##### 4.3.4.2 Adjusting the photo-eye

The photo-eye is factory set for average conditions, but the sensitivity of the photo eye may need to be adjusted, depending on the colour or reflective nature of the surface of the load and the ambient light.

Removing the plastic cover from the top of the photo eye reveals the following indicator LED and control.



To adjust the "Sens" trim pot, hold a piece of board (similar in colour to the load) in front of the photo eye near the far edge turntable. Move the board away from the photo-eye and adjust the "Sens" pot until the eye can see the board (LED illuminates) when at the far edge of the turntable but not beyond.

When the photo eye is looking at the load, the red LED should be illuminated. As the photo eye passes above the load (ie: detects the top of the load) the red LED should go off.

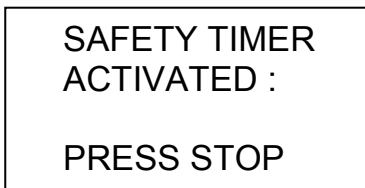
When setting up a photo-eye machine, be mindful of the surroundings that may be detected by the photo-eye. If the photo-eye can “see” the wall behind the Wrapper or forklifts or personnel moving behind the Wrapper, this may be registered as a load. If such a set up is unavoidable, care should be taken to adjust the sensitivity of the photo-eye so it can “see” the load but not see objects beyond the load.

### 4.3.5 Safety Timers

Safety timers are incorporated into the processor and activate in the event that carriage travel is not detected (by proximity switch) when the drive is energised. This may occur if either the proximity or limit switches are damaged or the carriage becomes jammed.

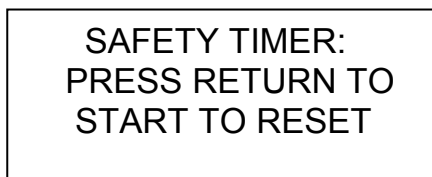
If a safety timer is activated, the mast and turntable motors are de-energised. It will not be possible to operate the machine until it is reset as follows:

(1) When a safety timer is activated, the display will show:



SAFETY TIMER  
ACTIVATED :  
  
PRESS STOP

(2) Press "Stop". The display will now show:



SAFETY TIMER:  
PRESS RETURN TO  
START TO RESET

(3) Press "Return to start".

The display goes straight to the manual screen to allow the carriage to be manually driven away from the fault.

(4) Check the mast for signs of malfunction or damage. Remove the chain cover and attempt to identify the cause of the safety timer activation. Possible causes include:

- Limit switch damage or malfunction
- Limit switch magnet (attached to carriage) is dislodged or covered in ferrous contaminants.
- Damaged limit switch wiring.
- Damaged or unadjusted prox

The carriage may have driven to the end of its travel. Check for damage to the chain and sprockets. If damage is evident, contact your STS agent. If not, proceed to the next step.

- (5) Check the mast chain tension as per section 5.4 as the over-travel may have altered adjustment.
- (6) Press "Return to start". The carriage will travel to the "Home" position. Carefully observe that the carriage stops at the bottom limit as described in 4.3.3.1. The Wrapper is now ready to resume operation.

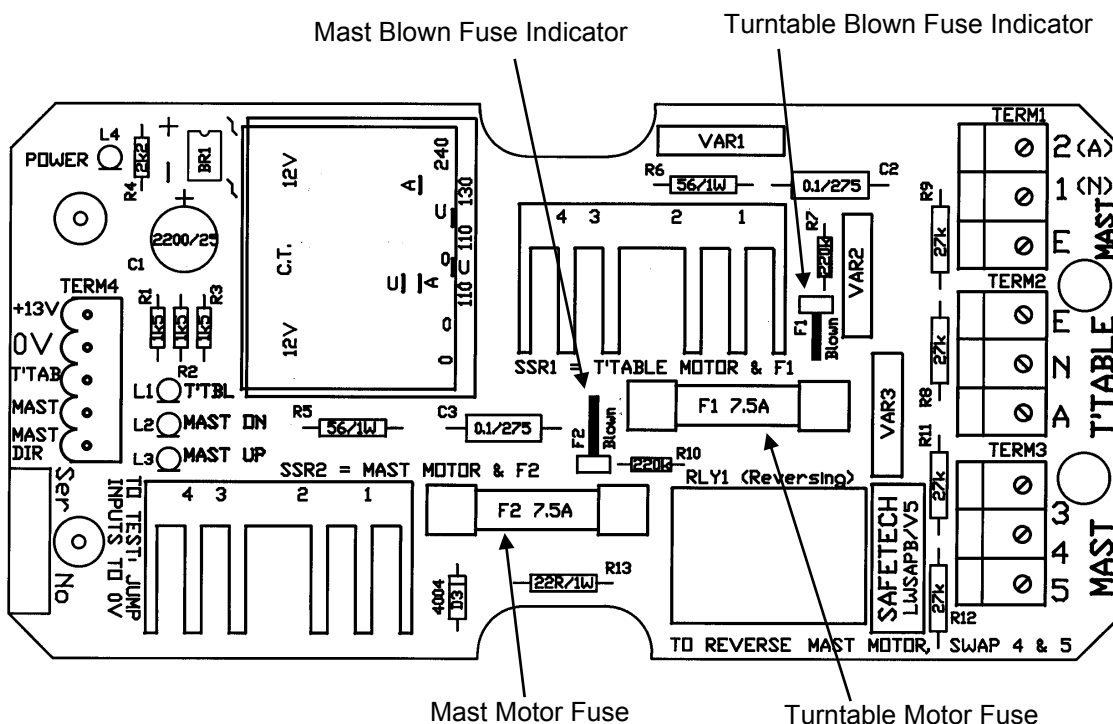
### 4.3.6 Fuses

The semi auto mast motor and turntable motor are each protected by fuses, located on the solid state power-board housed within the electrical enclosure. The fuses are 3AG, 7 amp 1¼ x ¼ inch cylindrical glass type. An orange neon indicator light, adjacent to each fuse will illuminate when the fuse is blown. See diagram below.

If the mast motor fuse blows, it is inevitable that a safety timer will activate. If this has occurred, the carriage will obviously not move when the reset procedure is attempted.

If either fuse blows, contact your STS agent before replacing the fuse and attempting to re-energise the machine. A blown fuse may indicate an electrical fault elsewhere in the system.

Once a blown mast motor fuse is replaced, the activated safety timer must be reset by the procedure described in section 4.3.5.



## **5 MAINTENANCE**

Periodic maintenance is required for Wrapper, and the following steps should be carried out (periods indicated are based on the assumption that 20 pallets are wrapped per day):

For Wrappers fitted with a Semi-Automatic mast, service intervals are indicated by the service due indicator LED and LCD display.

Servicing by a STS technician can be organised by contacting STS on **1800 674 566**.

### **5.1 Lo Wrapper**

#### **5.1.1 Drive Chain**

After the first six weeks of operation and thereafter every six months, unplug the Lo Wrapper, remove the chain cover and inspect for any wearing of the drive chain. Check for the ingress of dirt and other materials. Clean as necessary.

Instructions for the adjustment follow:

1. Disconnect the Wrapper from the power source.
2. Remove the motor and chain covers.
3. Loosen the motor bracket bolts.
4. Loosen the adjuster bolt lock nut.
5. By winding the adjusting bolt in a clockwise direction, the drive assembly should move towards the back of the Wrapper, increasing the chain tension.
6. The chain should laterally deflect 5 mm at 75 mm from the drive sprockets by light finger pressure. The chain adjustment should be checked whilst manually slowly rotating the turntable through one full revolution. This is done to check for any variation in chain tension caused by the turntable being not perfectly round.
7. Tighten the motor bracket bolts.
8. Tighten the locknut.
9. Replace the covers.

If the chain appears damaged or worn, contact your local Wrapper agent to purchase a replacement. Refer to parts listing for stock codes.

### **5.1.2 Lo-Wrapper Turntable Chain Lubricant**

Every six months unplug the Lo-Wrapper, remove the chain cover and inspect for any wearing of the chain, drive sprocket and the plastic wear liner. Check for the ingress of dirt and other materials. Clean as necessary.

If the chain appears dry, apply Shell Alvania EP (LF) 2 or Alvania HD2 grease to the exposed chain in the plastic wear liner. As the turntable rotates, this grease will spread around the entire chain.

### **5.1.3 Lo-Wrapper Turntable Internals**

Every two years the turntable should be dismantled, cleaned and the steel balls replaced. Please refer to your STS agent for detailed instructions or for a service call.

### **5.1.4 Turntable Prox Adjustment**

The Prox is set correctly during assembly however it may need adjustment if replacement of the gearbox is required.

1. Remove the Motor Cover.
2. Rotate the Turntable so one of the prox flags is in front of the Prox.
3. Loosed the two lock nuts.
4. Then move the prox so that it is approximately 1 mm away from the flag. The light on the back of the prox will illuminate when the prox is detecting the flag.
5. Tighten the two locking nuts.
6. Run the turntable for a few revolutions and ensure that the indicator light on the rear of the prox illuminates with each passing flag.

## **5.2 Easy Wrapper**

### **5.2.1 Drive Belt**

After the first six weeks of operation and thereafter every six months, unplug the Easy Wrapper, remove the belt cover and inspect for any wearing of the drive belt. Check for the ingress of dirt and other materials. Clean as necessary.

Instructions for the adjustment follow:

1. Disconnect the Wrapper from the power source.
2. Remove the motor and belt covers.
3. Loosen the motor bracket bolts.
4. Loosen the adjuster bolt lock nut.
5. By winding the adjusting bolt in a clockwise direction, the drive assembly should move towards the back of the Wrapper, increasing the belt tension.
6. The belt should deflect 40-50mm when light finger pressure is applied in the middle of the belt between the drive pulley and the turntable.
7. Tighten the motor bracket bolts.
8. Tighten the locknut.
9. Replace the covers.

If the belt appears damaged or worn, contact your local Wrapper agent to purchase a replacement. Refer to parts listing for stock codes.

### **5.2.2 Turntable**

The centre cap screw should be checked every 3 months to ensure that it is tight.

Every twelve months, the turntable rollers should be inspected for damage and to ensure they are clean. In order to do this the following steps should be followed:

1. Unplug the Easy Wrapper.
2. Slacken off the drive belt tension and remove the belt from the drive pulley.
3. Remove centre cap screw and spindle.
4. Carefully lift off turntable plate. Be careful not to damage Turntable Prox.
5. Clean and inspect tapered rollers. Remove any debris caked onto the rollers. Minor wear of the rollers is normal but if severe wear, cracking or broken rollers are observed, the rollers should be replaced.
6. Re-install turntable plate, spindle and tighten down capscrew. Apply "Loctite 224" to the capscrew on assembly.
7. Refit and adjust belt tension.

### **5.2.3 Turntable Prox Adjustment**

1. The Prox is located beneath the Turntable. Lift the Easy Wrapper with a forklift to access the Prox.
2. Rotate the Turntable so the prox flag is in front of the Prox.
3. Loosed the two lock nuts
4. Then move the prox so that it is approximately 1 mm away from the flag. The light on the back of the prox will illuminate when the prox is detecting the flag.
5. Tighten the two locking nuts.
6. Run the turntable for a few revolutions and ensure that the indicator light on the rear of the prox illuminates with each pass of the flag.

### **5.3 Manual Mast and Carriage**

The film carriage rolls up and down the internal surfaces of the mast. It is important that the internal mast surfaces and carriage wheels are kept clean and free from damage.

Do NOT apply grease or oil to the mast.

#### **5.3.1 Mast Counterweight Belt**

Unplug the Wrapper, and inspect the belt for evidence of cuts or fraying. A replacement counterweight belt can be obtained from Safetech. Refer to parts listing for stock codes.



## **5.4 Semi-Automatic Mast and Carriage**

### **5.4.1 Semi-Automatic Mast chain adjustment**

Remove the chain cover by removing:

1. The three screws at the bottom of the mast cover
2. The four bolts at the base of the mast.
3. The six screws abutting the control panel
4. With the help of an assistant lay mast down on a support block.
5. Remove the two screws at the top of the mast cover.
6. With the help of an assistant remove the mast cover.
7. With the help of an assistant stand the mast up.

The chain tension should be adjusted so that, with the carriage at the base of the mast, the centre of the chain can be deflected 20 mm by light finger pressure. The chain should be checked and adjusted after the first 6 weeks of operation and thereafter once every 6 months.

Check for the ingress of dirt and other materials. The original grease should be sufficient for the life of the Wrapper, but if the grease becomes contaminated, clean the chain and sparingly apply Shell Alvania EP (LF) 2 or Alvania HD2 grease.

### **5.4.2 Semi-Automatic mast slides**

Periodically check that the Mast Slides are well lubricated. If slides become dry or the grease becomes contaminated, clean the slides and apply Shell Stamina HDS.

### **5.4.3 Semi-Automatic mast limit switches**

Periodically check that the top and bottom limit switches are in a serviceable condition. Check that the switching magnet is intact and not fouled with ferrous contamination. Correct function of the limit switches is essential to prevent over-travel of the carriage.

### **5.4.4 Semi-Automatic mast proximity switch**

Periodically check the proximity switch for damage and correct adjustment. The head of the switch should be 2mm from the face of the flags.

## **5.5 Motor and gearbox**

The motors and gearboxes on all Wrappers are lubricated for life and require no routine maintenance.

## **6 SPECIFICATIONS**

Load Capacity: 2000 kg

Rotation Speed: 9 rpm

Power: 240 Volt Single phase, or optional 415 Volt 3 phase

Film roll sizes: 16 kg machine roll: 500 mm wide x 76 mm core internal diameter

Optional: 5 kg hand roll: 480 - 500 mm wide x 51 mm core I.D.

STS reserves the right to alter these specifications without notice as product improvement continues.

## **7 IDENTIFICATION**

All Wrappers carry an I.D. plate with serial number. Please quote the serial number when ordering parts.

## **8 SPARE PARTS**

Spare parts are currently available from your agent or directly from Safetech. As noted above, please quote the serial number of your Wrapper when ordering spare parts. Please refer to the following pages for part names and codes.

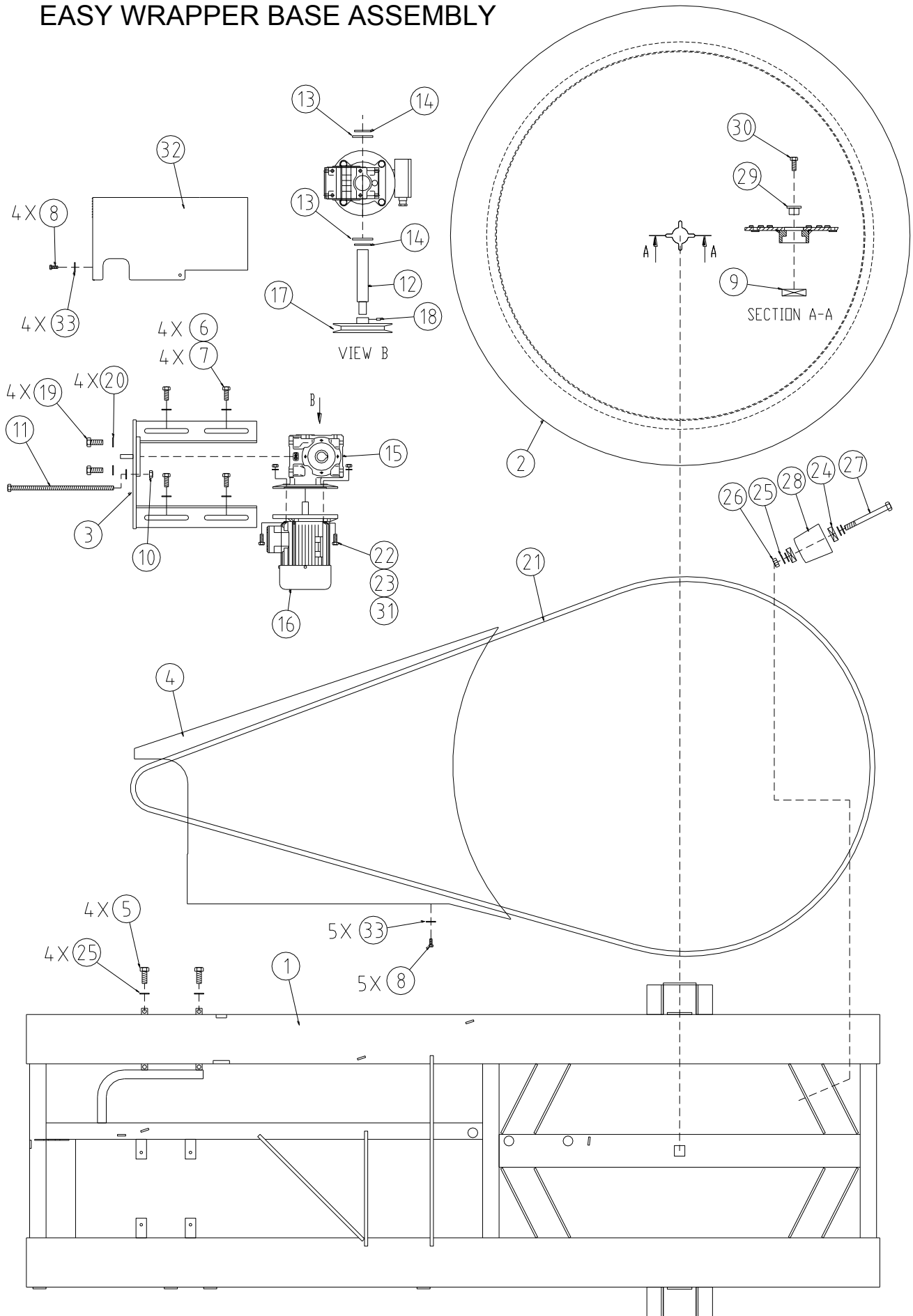
## **9 WIRING DIAGRAMS**

Wiring diagrams are included in the pages following the spare parts listings

## EASY WRAPPER - BASE ASSEMBLY

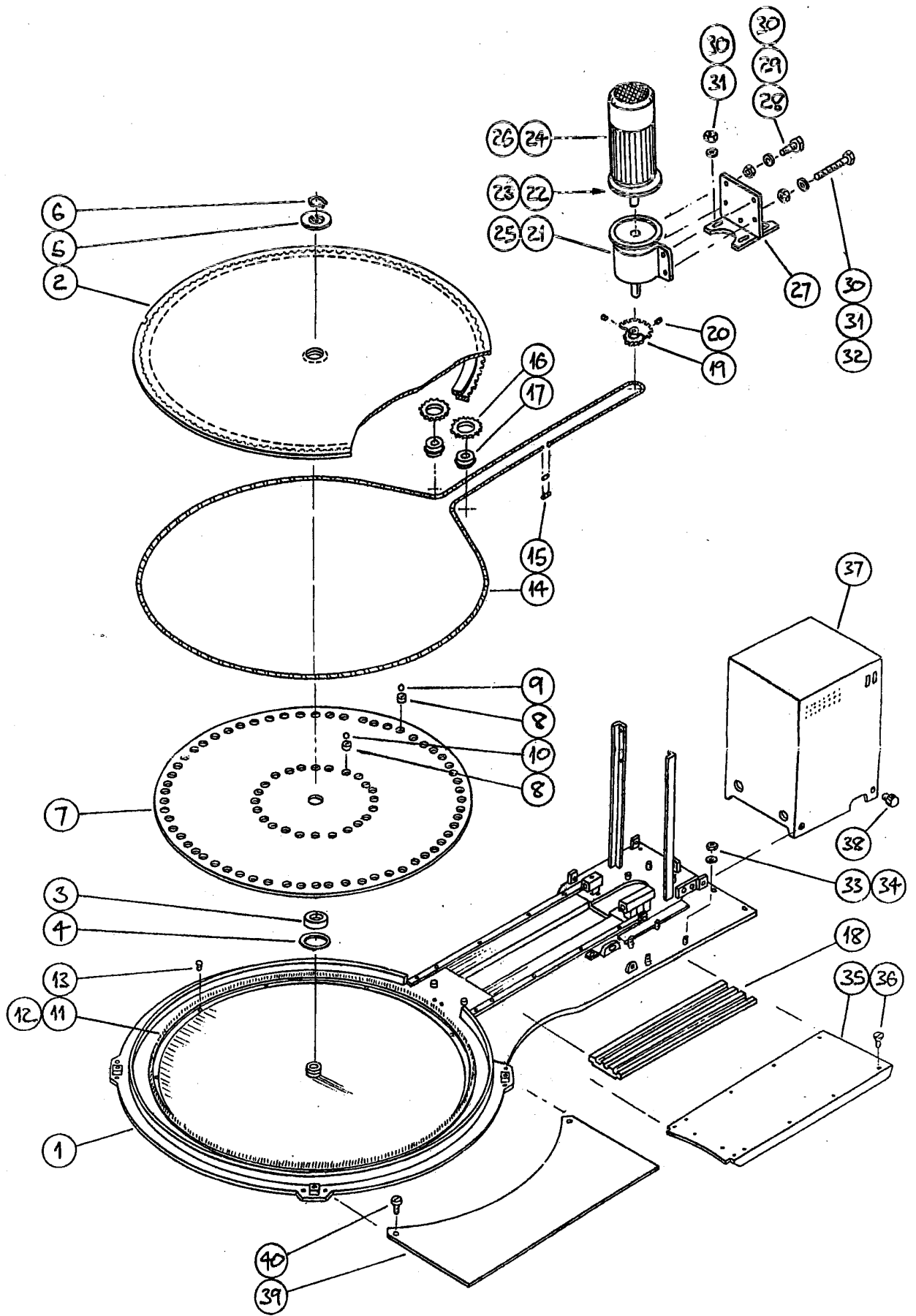
Ref	No. Req'd	Code	Material
1	1	E3BF	EW Base Frame Galvanised S#3
2	1	ES3TW	Turntable Weldment S#3
3	1	EW3GMW	Gearbox Mounting Weldment S#3
4	1	EW3BC	Belt Cover S#3
5	4	BOLTM12X30	Hex Bolt M12x30 Z.P.
6	4	BOLTM10X25	Hex Bolt M10x25 Z.P.
7	6	WASHM10	M10 Flat Washer Z.P.
8	9	BOLTM6X12HT	Hex Bolt M6x12 Z.P GR8.8.
9	1	B6305	6305 Bearing - Sealed
10	1	NUTM10	M10 Hex Nut Z.P.
11	1	EWJSCR	Jacking Screw Z.P.
12	1	EWDSK	Drive Shaft and Keys Z.P.
13	2	MTDSW	Machined Washer - Drive Shaft
14	2	CCLIP0240	Circlip D 1400 0240
15	1	GBMRV20	Worm Gearbox Rossi MRV40/71 20:1
16	1	M12H1PBCB	Motor-.37kw 1PH-4P-71 Frame-B5
17	1	EWDRPULL	Drive Pulley B-Section
18	2	GSCRM8X12	Grub Screw M8x12
19	4	BOLT7/16114H	Hex Bolt 7/16" UNC x1 1/4" H.T.
20	4	WASH716	7/16" Flat Washer Z.P.
21	1	BELTB210	B Section Vee Belt – B210
22	4	BOLTM8X30	Hex Bolt M8x30
23	4	NUTM8NY	M8 Nyloc Nut
24	12	B6301	Bearing 6301 - Sealed
25	12	WASHM12HD	M12 Heavy Duty Flat Washer Z.P.
26	6	NUTM12NY	M12 Nyloc Nut
27	6	BOLTM12X120	Hex Bolt M12x120 Z.P.
28	6	EWNR	Nylon Roller
29	1	EWSPIND	Spindle Z.P.
30	1	CAPSCRM10X40	Socket Head Cap Screw M10x40
31	4	WASHM8	M8 Flat Washer Z.P.
32	1	EW3MC	Motor Cover S#3
33	9	WASHM6	M6 Flat Washer

# EASY WRAPPER BASE ASSEMBLY



## LO-WRAPPER DISC & DRIVE ASSEMBLY

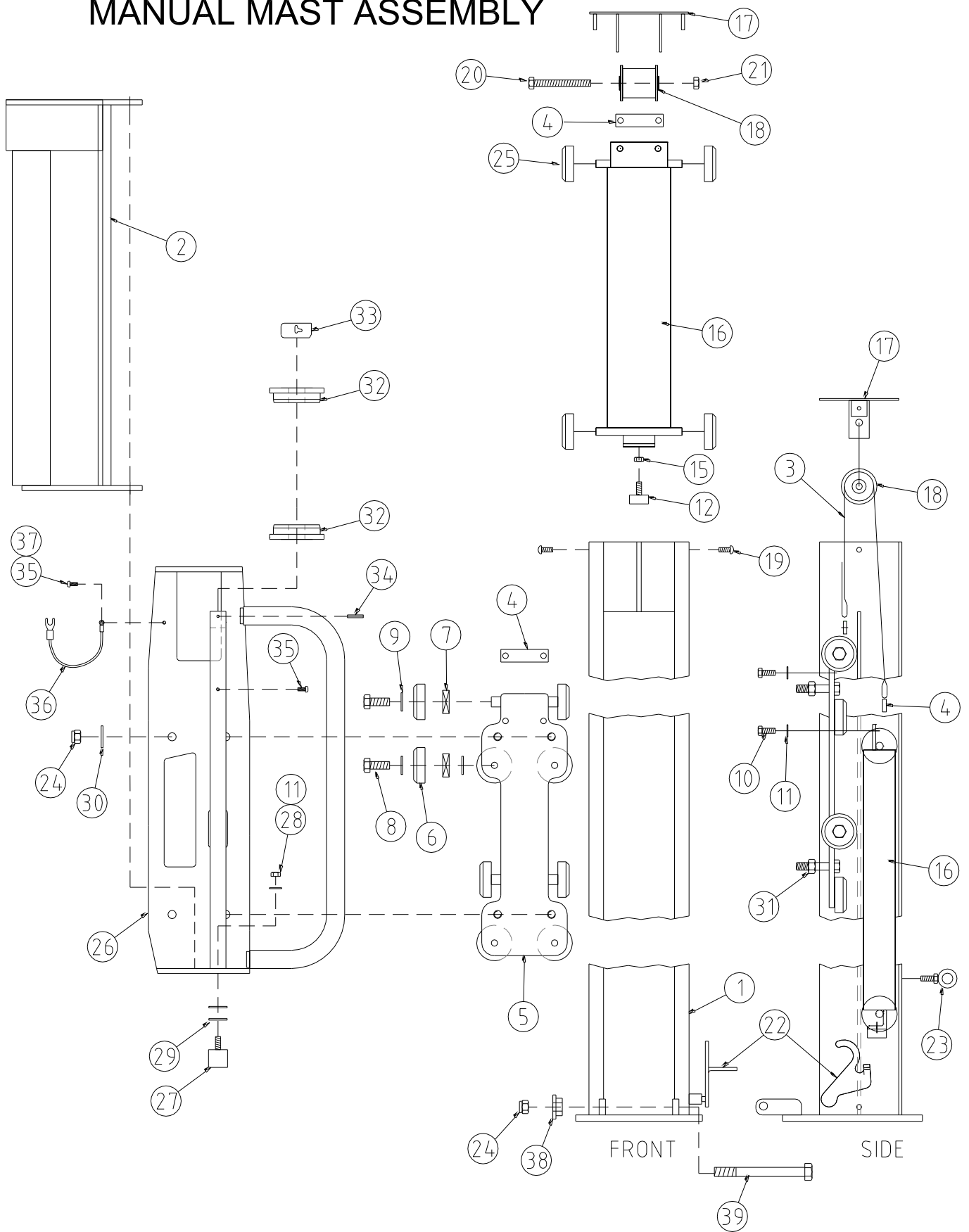
Ref	No. Req'd	Code	Material
1	1	L3BW	Lo-Wrapper S#3 Base Weldment
2	1	LWTPLW	Lo-Wrapper TT Top plate Weldment
3	1	B6807	Bearing 6807 (35 diam x 47 diam x 7)
4	1	MPDPWASH	Plastic spacer washer
5	1	MPDTABW	Motorised Paldisc tab washer
6	1	CCLIP0125	Circlip N1460 - 0125
7	1	LWCPL	Carrier plate
8	84	BALLC	Ball carrier
9	60	BALL12	1/2" diam C/Cr steel ball
10	24	BALL716	7/16" diam C/Cr steel ball
11	1	SEALH	Seal holder
12	3.5m	SEALBRPS8	Seal brush – Schlegel PS8
13	15	DRPIN4X14	Drive pin - #4 x 1/4" Z.P. steel
14	1	CH111044S3	Chain S#3 Reynold No.111044 x 461 pitches
15	1	CHJ107	Chain joiner Reynold No.107 (suits 111044 chain)
16	2	SPROK19T	19T Idler sprocket
17	2	B6003ZNR	Bearing 6003 (with snap ring & seals or shields)
18	1	L3WL	Wear liner Lo-Wrapper S#3
19	1	L3S17TPF	17T Drive sprocket S#3 with Prox Flag
20	2	GSCRM8X12	M8 x 12 grub screw knurled point
21	1	GBMR21941	Gearbox – Rossi MR2i40 – 71/B5 9.41:1 ratio
22	4	NUTM8	M8 BLK nuts (supplied with gearbox)
23	4	WASHM8	8 diam blk washers (supplied with gearbox)
24	1	M12H1PBCB	Motor-.37kw 1PH-4P-71 Frame-B5
25	1	KEY6X5X35	supplied with gearbox
26	1	KEY5X4X15	Key 5x4x15 – supplied with motor
27	1	L3MB	Lo-Wrapper S#3 Motor bracket
28	4	BOLT38X112	3/8" BSW x 1 1/4" Z.P. hex bolt
29	4	NUT38	3/8" BSW hex nut
30	10	WASHM10	10 mm diam. (or 3/8") Z.P. flat washer
31	5	NUTM10	M10 Z.P. hex nuts
32	1	CASSCRM10X130	Chain adjuster set screw: M10 x 130
33	4	NUTM12NY	M12 Nyloc nut
34	4	WASHM12	12 diam. Z.P. flat washer
35	1	L3CC	Lo-Wrapper Chain cover
36	12	CSKCSCRM6X12	M6 x 12 CSK socket head cap screws – Z.P.
37	1	L3MC	Lo-Wrapper Motor cover S#3
38	4	BOLTM6X12HT	Hex Bolt M6x12 Z.P GR8.8.
39	1	LWRW	Lo-Wrapper Ramp Weldment
40	2	RAMPSCRM10X14	Ramp screw, M10 x 14



## MANUAL MAST ASSEMBLY

Ref	No. Req'd	Code	Material
1	1	M3M	S#3 STD Manual Mast
2	1	S3TRA	Tension Roller Arm Assembly
3	1	M3STRAP	S#3 Mast Strap
4	2	EWCCPL	Clamp Plate
5	1	M3C	S#3 Manual Carriage
6	8	EWCWHEEL	Carriage Wheel
7	8	B6300ZRSNR	Bearing 6300 with Snap Ring
8	8	BOLTM10X25	Hex Bolt M10x25 Z.P.
9	12	WASHM10	M10 Flat Washer
10	4	BOLTM8X16	Hex Bolt M8x16 Z.P.
11	7	WASHM8	M8 Flat Washer Z.P.
12	½	A666RMSTUD	A666 Radiator Mounting Stud
13	1	M3H	Handle S#3 Manual
14	3	BOLTM8X20H	Hex Bolt M8x20 GR8.8
15	1	NUT516UNF	Hex Nut 5/16" UNF
16	1	M3CWW	S#3 Counter Weight Weldment
17	1	EWTMPL	Top Mast Plate
18	1	EWTMROLL	Top Mast Roller
19	2	SCRM6X12	M6x12 Pan Head Screw Z.P.
20	1	BOLTM10X90	Hex Bolt M10x90 Z.P.
21	1	NUTM10NY	M10 Nyloc Nut
22	1	EWCLOCK	Carriage Lock
23	1	EWCWLB	Counter Weight Lock Bolt
24	5	NUTM12NYP	M12 Nyloc Nut, Type P
25	4	EWCWW	Counter Weight Wheel
26	1	M3CF	M#3 Carriage Front Plate
27	1	BBM507	Bonded Buffer
28	1	NUTM8	M8 Hex Nut
29	2	WASH516B	5/16" x 1" Body Washer
30	4	WASHM12	M12 Flat Washer
31	4	NUTM12	M12 Hex Nut
32	1	M3FM	Film Mandrel M#3
33	1	M3FSL	Film Spindle Lock M#3
34	1	RPIN4X25	Roll Pin
35	2	SCRM5X8	M5x8 Screw
36	1	M3ES	Earth Strap
37	1	WASHM5	M5 Washer Z.P.
38	1	M3HAB	Mast Hinge Adapter Bush
39	1	BOLTM12X170	Hex Bolt M12x170 Z.P.

# MANUAL MAST ASSEMBLY



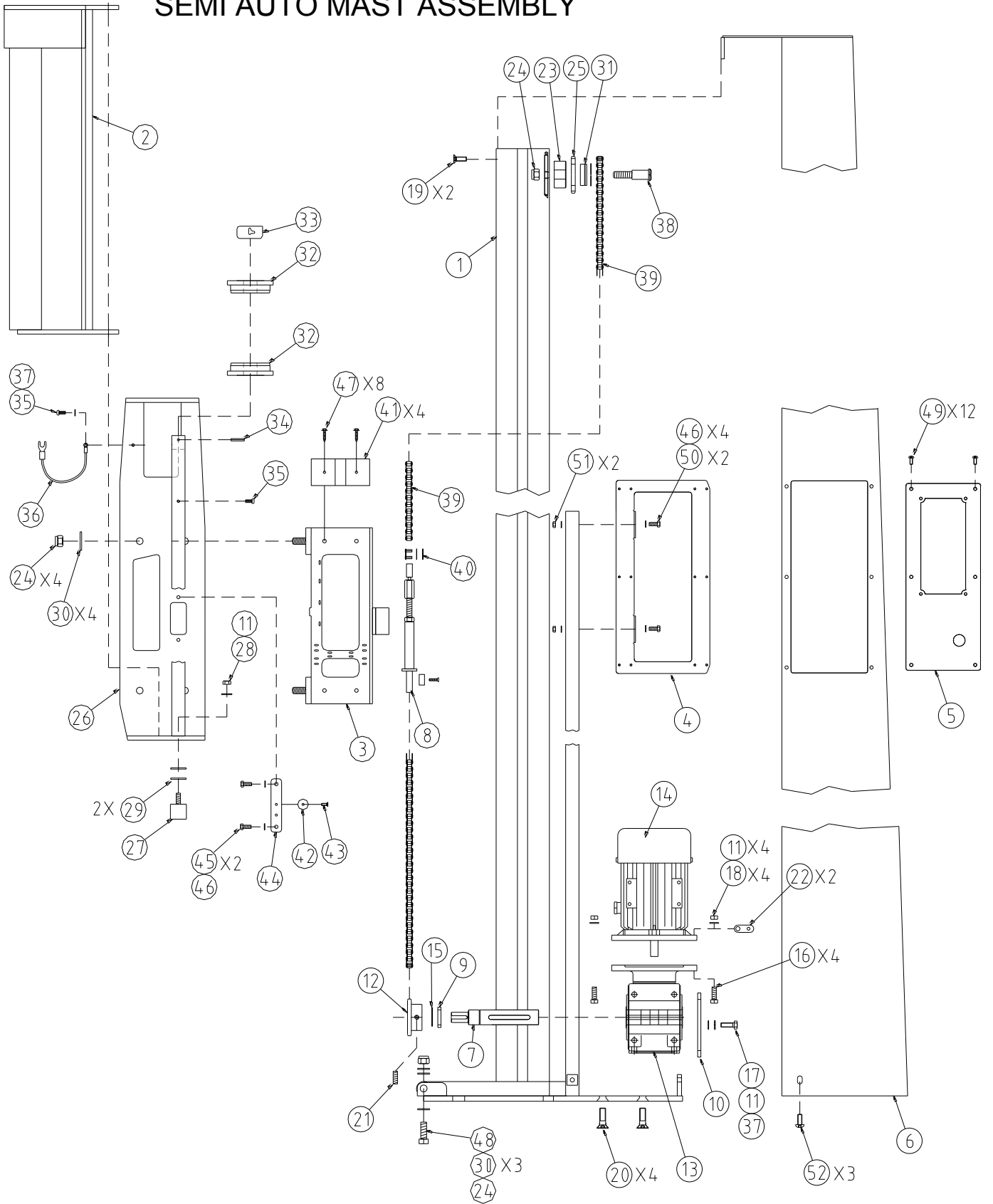
MANUAL S



## SEMI AUTO - MAST ASSEMBLY

Ref	No. Req'd	Code	Material
1	1	S3MSW	Semi Auto Mast S#3 Weldment
2	1	S3TRA	Tension Roller Arm Assembly
3	1	S3MCW	Semi Auto Mast Carriage S#3 Weldment
4	1	S3PBP	Control Panel Backing Plate S#3
5	1	S3PMP	Control Panel Mounting Plate S#3
6	1	S3CC	Chain Cover – Semi Auto S#3
7	1	S3DSK	Drive Shaft & Keys S#3
8	1	S3CTA	Chain Tensioner Assy – S.A. S#3
9	1	S3CSW	Circlip Support Washer S#3
10	1	S3MPF	Mast Prox Flag - 17T - S#3
11	6	WASHM8	8mm Flat Washer
12	1	S3DS	Drive Sprocket - 17T - S#3
13	1	GBMRV50/100	Gearbox - Worm MRiV50/71B - 2.54x40:1 ratio
14	1	M12H1PBCB	Motor-.37kw 1PH-4P-71 Frame-B5
15	1	CCLIP0280	Circlip D1400 - 0280
16	4	BOLTM8X30HT	M8x30 Hex Bolt Gr 8.8 Z.P.
17	1	BOLTM8X25HT	M8x25 Hex Bolt Gr 8.8 Z.P.
18	4	NUTM8	M8 Hex Nut Z.P.
19	2	CSKCSCRM8X20	M8x20 CSK Socket Head Cap Screw
20	4	CSKCSCR716X114	7/16" x 1 1/4" CSK Cap Screw
21	1	GSCRM8X12	M8x12 Grub Screw
22	2	SBSP	Safety Bar Switch Plate
23	1	S3SS	Sprocket Spacer S#3 - Z.P
24	6	NUT12NYP	M12 Nyloc Nut - Type P Z.P.
25	1	S3IS	Idler Sprocket - 17T
26	1	S3CF	S#3 Carriage Front Plate
27	1	BBM507	Bonded Buffer
28	1	NUTM8	M8 Hex Nut
29	2	WASH516B	5/16" x 1" Body Washer
30	7	WASHM12	M12 Flat Washer
31	1	B6203-2NSNR	Bearing 6203 – 2RSNRC3
32	1	M3FM	Film Mandrel M#3
33	1	M3FSL	Film Spindle Lock M#3
34	1	RPIN4X25	Roll Pin
35	2	SCRM5X8	M5x8 Screw
36	1	M3ES	Earth Strap
37	1	WASHM5	M5 Washer Z.P
38	1	BBOLT65	Bearing Bolt - PALIFT 65mm
39	1	CH110046S3	Chain A&S 08B-1-397 Pitches
40	1	CHJ26/110046	Chain Joiner A&S 08B-1/CL
41	4	S3CS	Carriage Slider - Ertalon LFX
42	1	LWMAG	Magnet #260-369 LM/ET3
43	1	CSKCSCRM4X16	M4x16 CSK Socket Head Cap Screw
44	1	S3MH	Magnet Holder SA S#3 - Z.P
45	2	BOLTM6X12HT	Hex Bolt M6 x 12 Z.P GR 8.8
46	6	WASHM6	M6 Flat Washer Z.P.
47	8	TEKSCR12X25T	12Gx25 Hex Type 17 (Timber)
48	1	BOLTM12X40	Hex Bolt M12 x 40 Z.P
49	12	CAPSCRM5X12SS	M5x12mm Cap Screw GR304 SS
50	2	BOLTM6X16	Hex Bolt M6 x 16 Z.P
51	2	NUTM6	M6 Hex Nut
52	3	PANSCRM8X16	M8x16 Pan Head Cap Screw

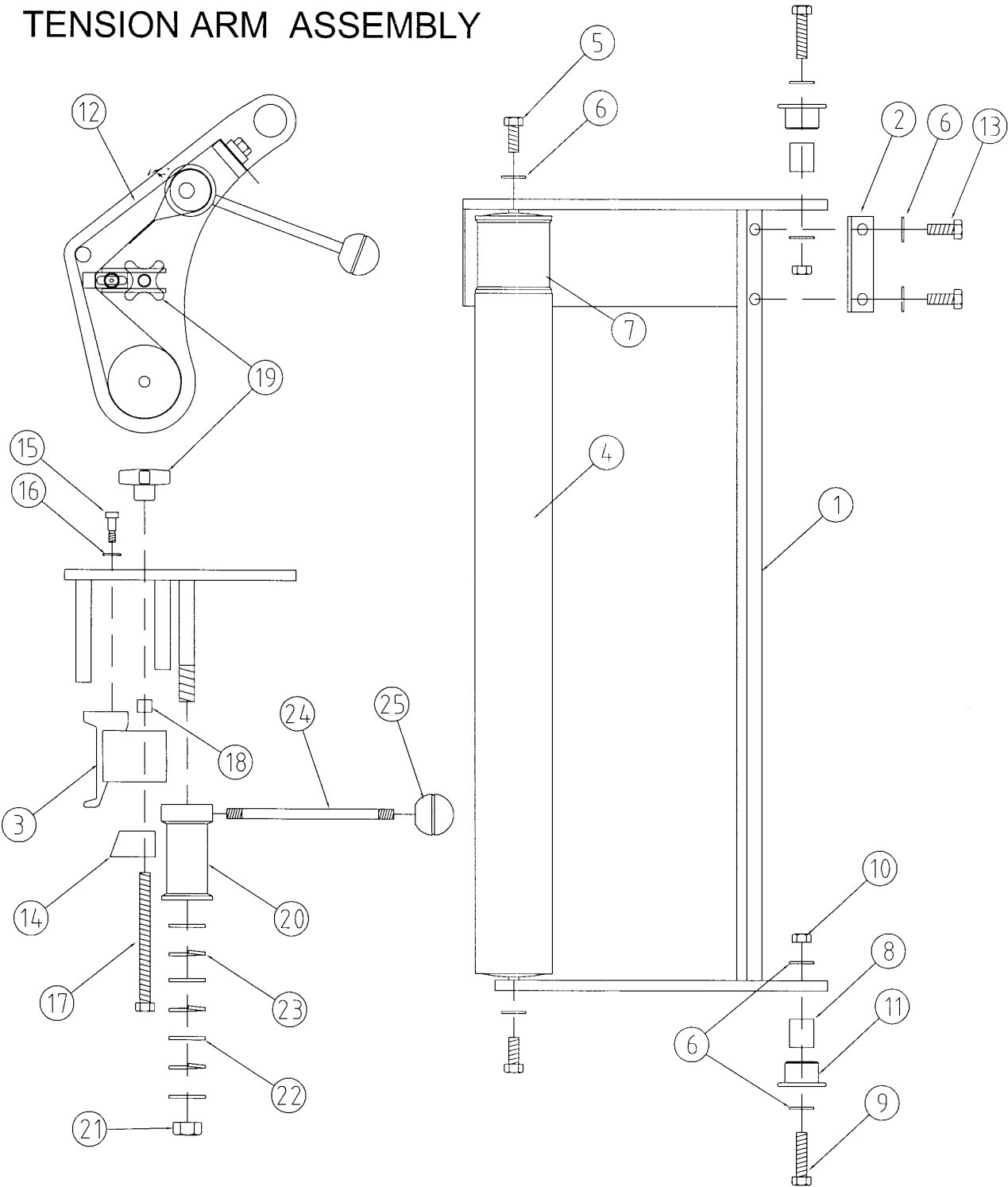
# SEMI AUTO MAST ASSEMBLY



## WRAPPER - TENSION ROLLER ARM

Ref	No. Req'd	Code	Material
1	1	S3TRW	Tension Roller Arm Weldment S#3
2	2	S3TSC	Tension Strap Clamp S#3
3	1	S3TSW	Tension Shoe Weldment S#3
4	1	S3TR	Tension Roller
5	2	BOLTM8X20	Hex Bolt M8x20 Z.P.
6	8	WASHM8	M8 Flat Washer Z.P.
7	1	S3TR	Tension Roller Shell S#3
8	2	S3IAP	Idler Arm Pivot S#3
9	2	BOLTM8X45	Hex Bolt M8x45 Z.P.
10	2	NUTM8NY	M8 Nyloc Nut
11	2	BUSHS606	Flanged Plastic Bush
12	1	S3TRS	Tension Roller Strap S#3
13	2	BOLTM8X16	Hex Bolt M8x16 Z.P.
14	1	S3TW	Tensioner Wedge S#3
15	1	SHSCRM5X10	Socket Shoulder Screw Size 6 x 10
16	1	WASHM6	M6 Flat Washer Z.P.
17	1	SSCRM8X100HT	Set Screw M8x100 GR8.8
18	1	S3TSS	Tensioner Screw Stop Z.P S#3
19	1	T3PAK	PS Adjuster Knob
20	1	S3TECC	Tensioner Eccentric S#3
21	1	NUTM12NYP	M12 Nyloc Nut, Type P
22	4	WASHM12	M12 Flat Washer Z.P.
23	3	WASHM12SP	M12 Spring Washer Z.P.
24	1	S3TEL	Tensioner Eccentric Lever S#3
25	1	T3LPK	Locking Pin Knob

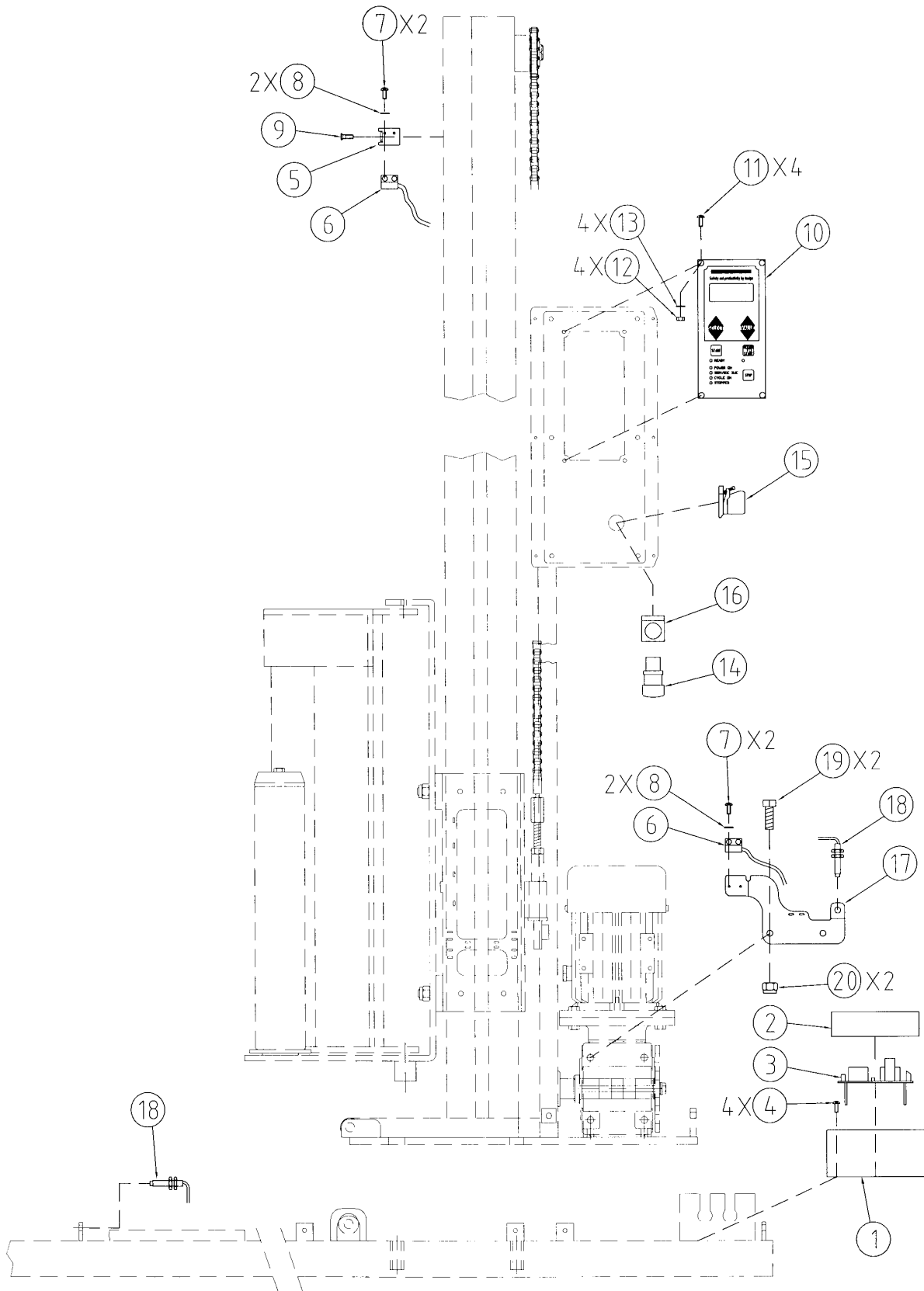
# TENSION ARM ASSEMBLY



## EASY WRAPPER SEMI AUTO ELECTRICAL ASSEMBLY (ES3EA)

Ref	No. Req'd	Code	Material
1	1	BOX56E2	Clipsal 56E2 Enclosure
2	1	LID56L2	Grey Junction Box Lid 56L2
3	1	LWSAPBV3	LW Semi Auto Power Board
4	4	SCRM4X10	M4 x 10 Round Head Screws Z.P
5	1	S3LSB	Limit Switch Bracket, Z.P
6	2	REEDSW	Reed Switch #338-743
7	4	SCRM3X10	M3 x 10 Round Head Screws Z.P
8	4	WASHM3	M3 Flat Washer Z.P
9	1	CSKCSCRM4X12	M4 x 12 CSK SKT Head Cap Screws Z.P
10	1	S3ECB	Control Board - Film (Modra)
11	4	CAPSCRM5X12SS	M5 x 12 Cap Screw GR304 SS
12	4	NUTSSM5	S/Steel M5 Nut - GR304
13	4	WASHM5SHP	5 mm Shakeproof Washer- Z.P
14	1	PBES	Red Stop Pushbutton - Panel Mount
15	1	PBCONTPNC	Contact Block - N.C Panel Mount
16	1	PBLEGSTOP	Legend Plate - Stop
17	2	S3PLB	Prox/Bottom Limit Bracket - Z.P
18	2	LWS2PROX	Proximity Switch
19	2	BOLTM8X20	M8 x 20 Set Screw - Z.P
20	2	NUTM8NY	M8 Hex Nut Nyloc

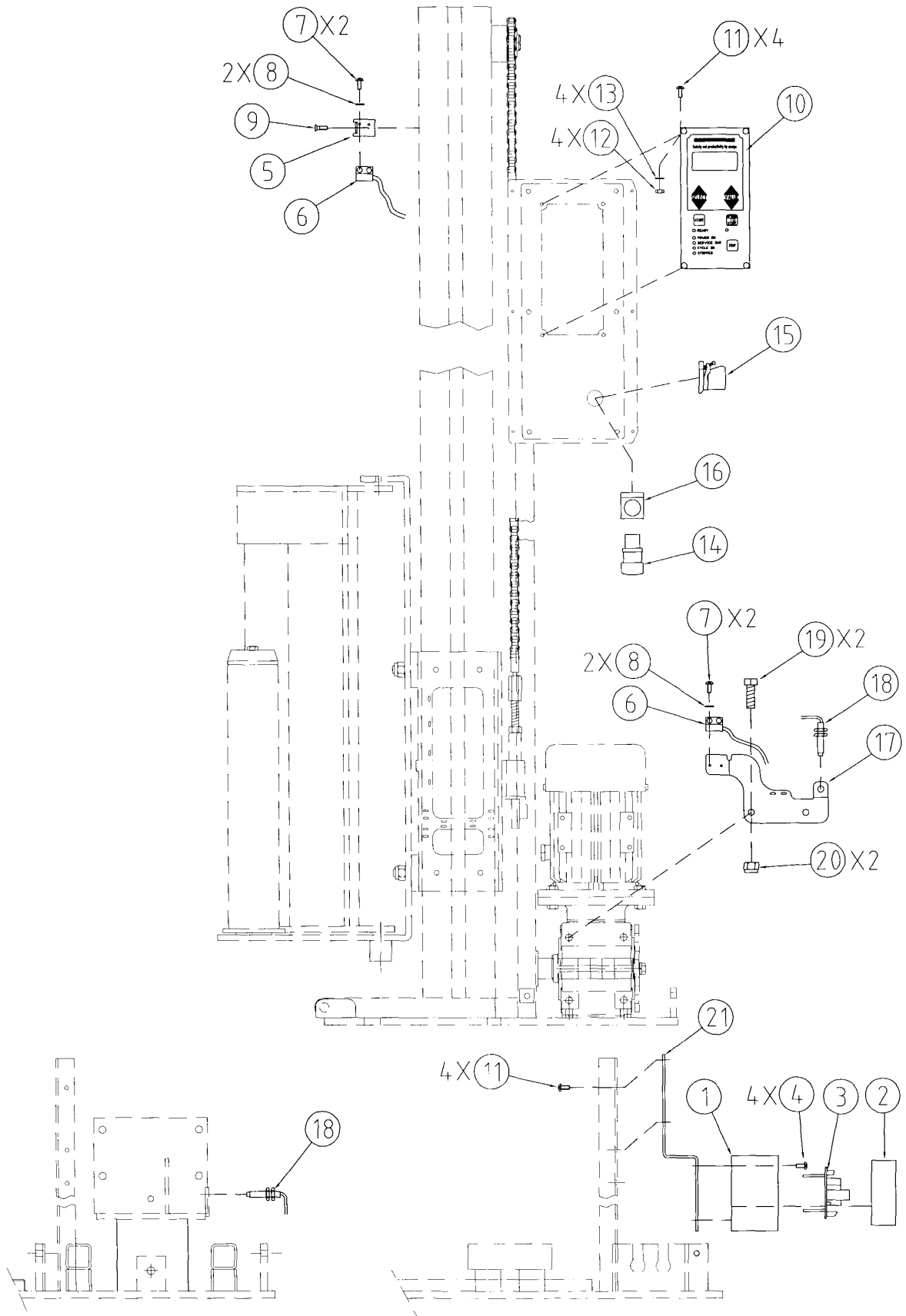
# EASY WRAPPER SEMI AUTO ELECTRICAL ASSEMBLY



## LOW WRAPPER SEMI AUTO ELECTRICAL ASSEMBLY (LS3EA)

Ref	No. Req'd	Code	Material
1	1	BOX56E2	Clipsal 56E2 Enclosure
2	1	LID56L2	Grey Junction Box Lid 56L2
3	1	LWSAPBV3	LW Semi Auto Power Board
4	4	SCRM4X10	M4 x 10 Round Head Screws Z.P
5	1	S3LSB	Limit Switch Bracket, Z.P
6	2	REEDSW	Reed Switch #338-743
7	4	SCRM3X10	M3 x 10 Round Head Screws Z.P
8	4	WASHM3	M3 Flat Washer Z.P
9	1	CSKCSCRM4X12	M4 x 12 CSK SKT Head Cap Screws Z.P
10	1	S3ECB	Control Board - Film (Modra)
11	8	CAPSCRM5X12SS	M5 x 12 Cap Screw GR304 SS
12	4	NUTSSM5	S/Steel M5 Nut - GR304
13	4	WASHM5SHP	5 mm Shakeproof Washer- Z.P
14	1	PBES	Red Stop Pushbutton - Panel Mount
15	1	PBCONTPNC	Contact Block - N.C Panel Mount
16	1	PBLEGSTOP	Legend Plate - Stop
17	2	S3PLB	Prox/Bottom Limit Bracket - Z.P
18	2	LWS2PROX	Proximity Switch
19	2	BOLTM8X20	M8 x 20 Set Screw - Z.P
20	2	NUTM8NY	M8 Hex Nut Nyloc
21	1	LWS2ESB	Switchgear Bracket

# LOW WRAPPER SEMI AUTO ELECTRICAL ASSEMBLY



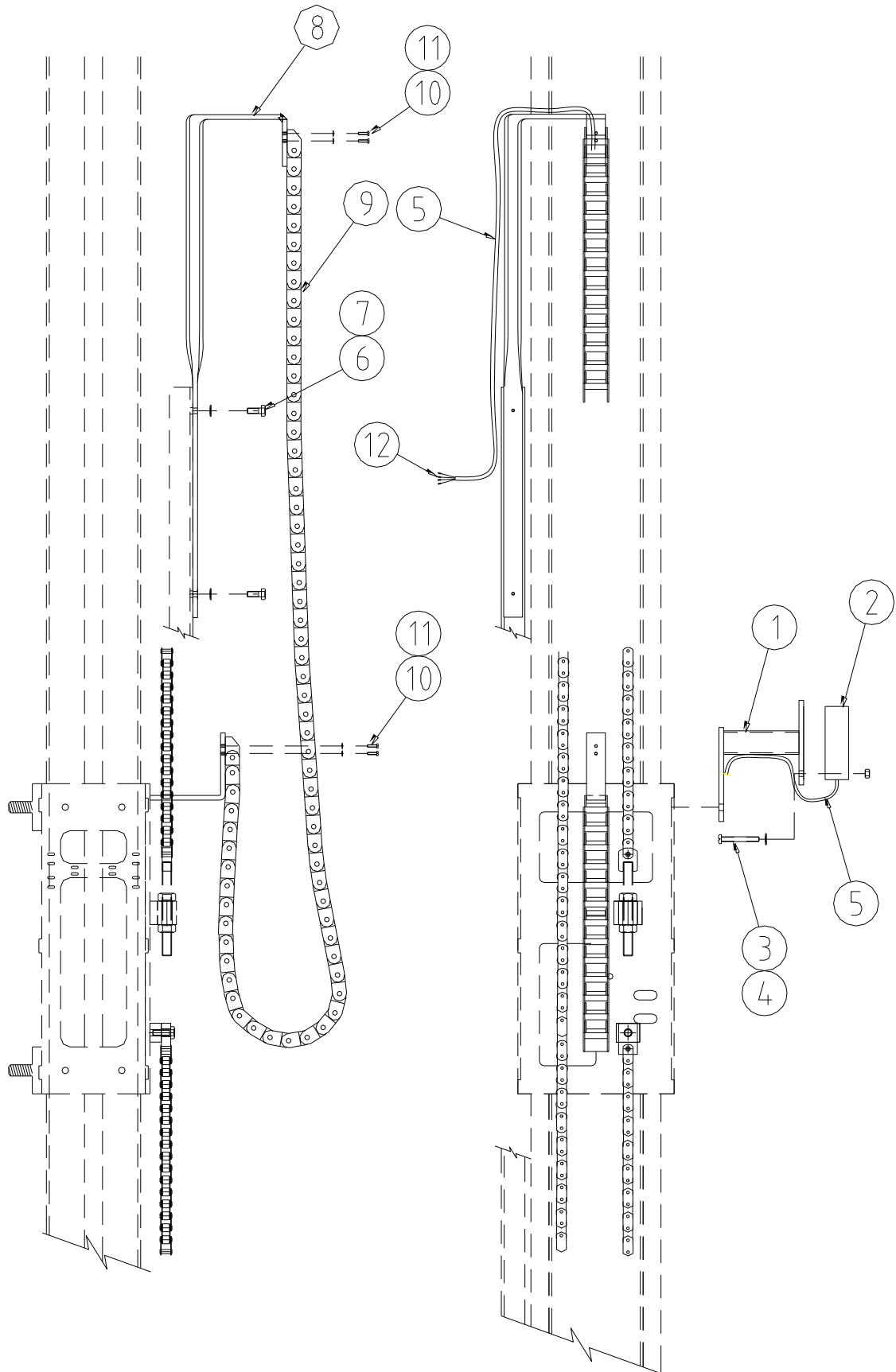


## PHOTO-EYE KIT (S3PKIT)

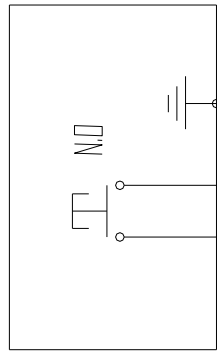
Ref	No. Req'd	Code	Material
1	1	S3PEBKT	Photo-eye Bracket S#3 SA Mast
2	1	PES-WT260R*	Photo-eye WT260-S280 Relay (SICK)
3	2	SCRM5X40	M5 x 40 Pan Round Head Screws Z.P
4	2	WASHM5	M5 Flat Washer Z.P
5	2	CABLE4C022S	Cable 4 Core x 0.22 mm
6	2	BOLTM6X12HT	M6 x 12 Hex Bolt High Tensile - Z.P
7	2	WASHM6	M6 Flat Washer Z.P
8	1	S3CSAB	Cable Snake Anchor Bracket
9	75	CS0620	Energy Chain 06.20.038
10	4	SCRM3X10	M3 x 10 Round Head Screws Z.P
11	4	WASHM3	M3 Flat Washer Z.P
12	4	CE16P	HE14 Crimp End
13	8	TIE8	Cable Tie 8 inch (not shown)
14	6	TIE4	Cable Tie 4 inch (not shown)

\* Also available, Photo-eye Black Film WT24-2R210 (SICK), Code: PS-WT24

# PHOTO EYE KIT SERIES 3 (S3PKIT)

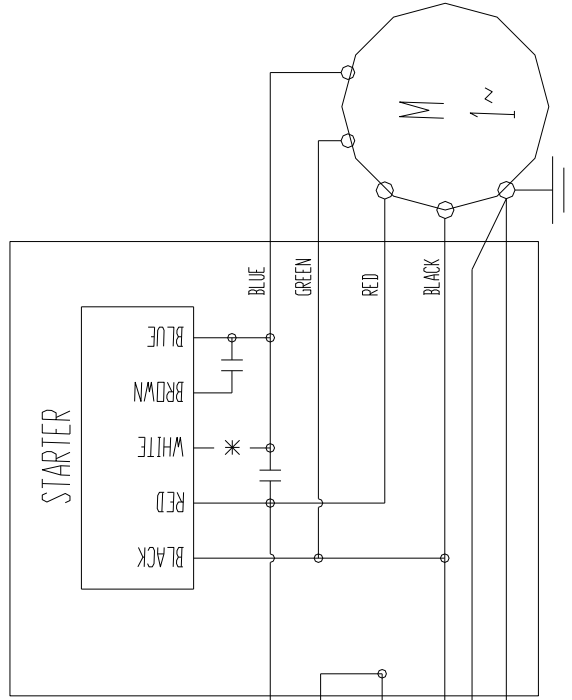


FOOT SWITCH



NOTE \* - LINK PRESENT FOR MOTORS WITH LOW LEVEL WIRING.  
THIS LINK IS NOT PRESENT ON MOTORS WITH HIGH LEVEL WIRING, REFER TO MOTOR TERMINAL COVER.

MOTOR ENCLOSURE



A BROWN  
N BLUE  
E GREEN

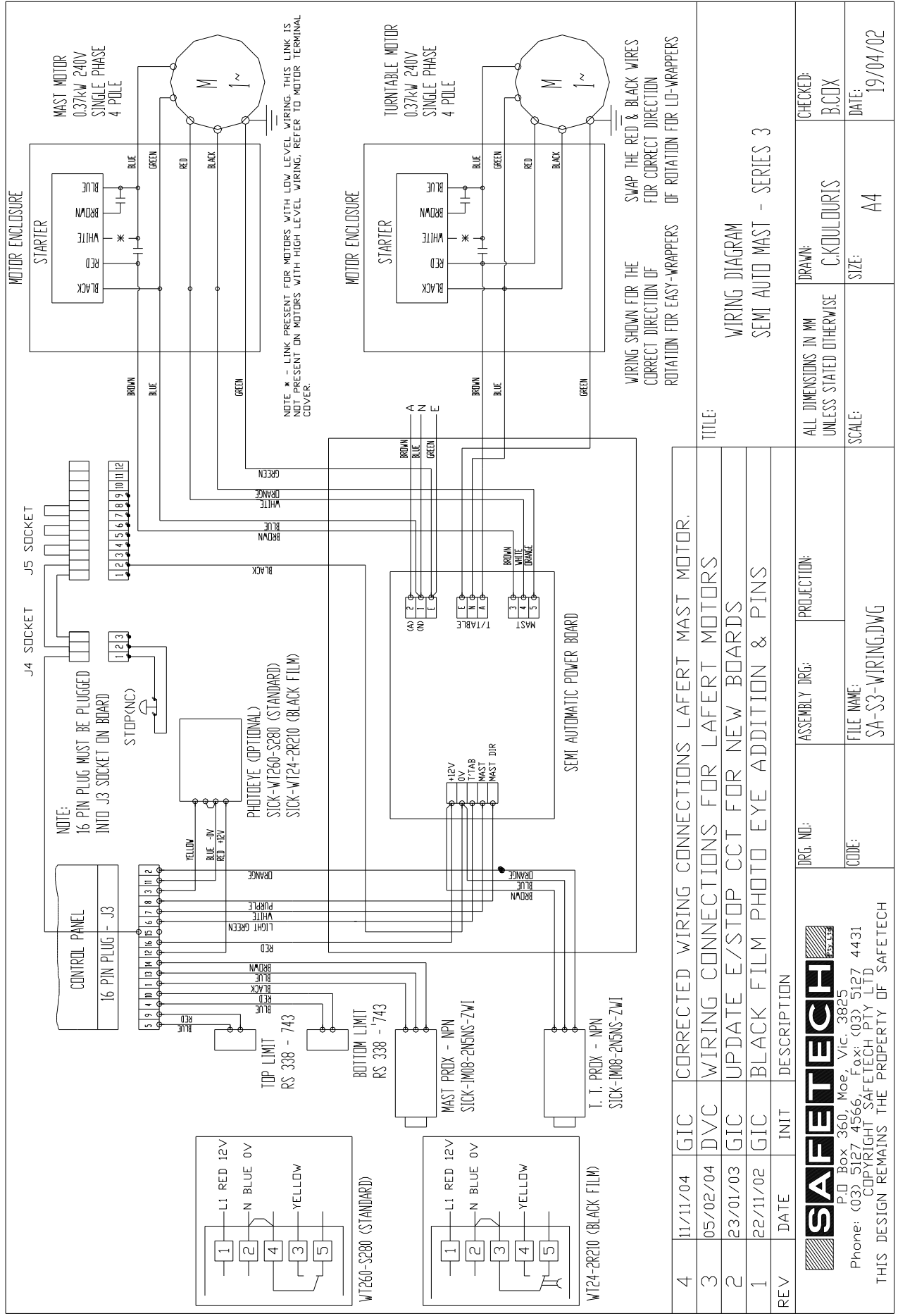
240V  
SINGLE PHASE  
SUPPLY

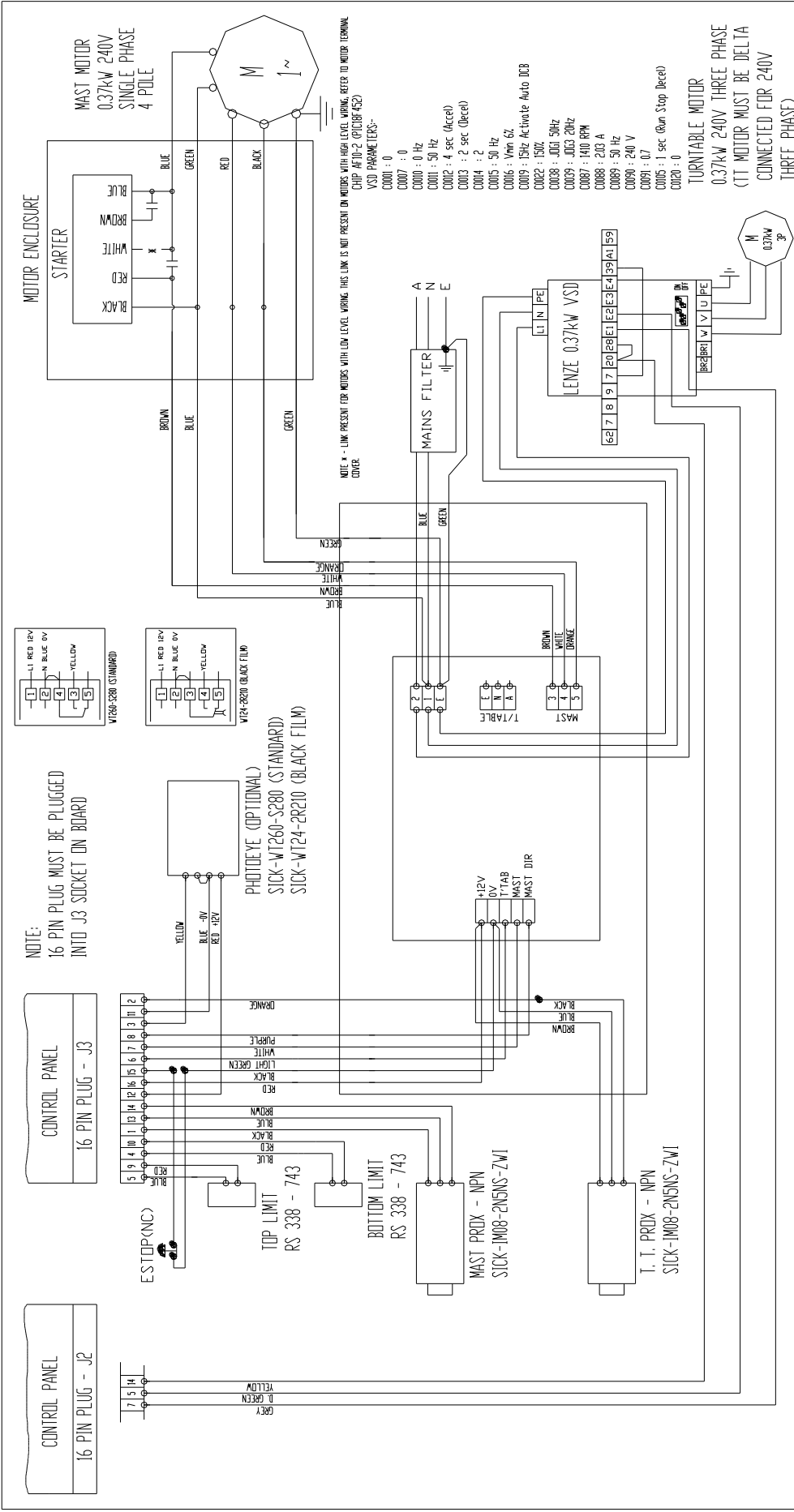
WIRING SHOWN FOR THE  
CORRECT DIRECTION OF  
ROTATION FOR EASY-WRAPPERS  
SWAP THE RED & BLACK WIRES  
FOR CORRECT DIRECTION  
OF ROTATION FOR LO-WRAPPERS

23/11/04	DVC	B	LINK CONNECTION & NOTE ADDED
05/02/04	DVC	A	WIRING CONNECTIONS FOR LAFERT MOTORS
DATE	INIT	REV	DESCRIPTION

TITLE:  
WRAPPER MANUAL WIRING DIAGRAM  
DEADMAN CONTROL

<p>P.O. Box 360, Moe, Vic. 3825 Phone: (051) 27 4566, Fax: (051) 27 4431 COPYRIGHT SAFETECH PTY LTD THIS DESIGN REMAINS THE PROPERTY OF SAFETECH</p>	ASSEMBLY DRG:	PROJECTION:	DRAWN:
	MAN-S3-WIRING		G. CORRIE
DRG. NO.:	SCALE:	DATE:	FILENAME:
CODE:		15/6/95	





FULL SPEED J2/5 ON GREY CREEP SPEED J2/5 & J2/7 ON D. GREEN		TITLE: WIRING DIAGRAM - E/S3- (ONWARDS) SEMI AUTO MAST - VSD WIRING	
REV	DATE	INIT	DESCRIPTION
-	-	-	-
DRG. NO.:		ASSEMBLY DRG.:	PROJECTION:
CODE:		FILE NAME:	VSD - WIRING.DWG
DRAWN:		GIC	CHECKED:
SCALE:		N.T.S.	SIZE:
A4		DATE:	16/09/04
ALL DIMENSIONS IN MM UNLESS STATED OTHERWISE			

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## 10 Film Wrapper Trouble Shooting Guide

**A qualified electrician must perform any electrical testing.**

**Throughout this guide, reference is made to relevant sections in the User Manual**

PROBLEM	POSSIBLE CAUSES	CHECKS	REMEDY
10.1 Turntable does not rotate. Perform test procedure – 1 & 2.	a) Turntable Motor fuse blown	Does Turntable run in Manual mode? Refer to Section 4.3.2.5 in User Manual.	Replace fuse; see Section 4.3.6 in User Manual. Spare fuses inside power board enclosure.
	b) Control board fault	Does screen change when using arrow keys?	Cycle Power, while depressing “Return to Start” key to perform Initialise Variables Procedure. Access hidden set-up screen; see Section 4.3.2.3 in User Manual, and reconfigure machine type. Contact your STS agent if problem persists.
	c) Mechanical obstruction beneath turntable.	Easy Wrapper - Inspect under turntable, release tension on belt drive and check that turntable is free to rotate.  Lo Wrapper – Turntable should feel free to rotate by hand without disconnecting drive chain.	Easy Wrapper – Remove any obstruction, Service & Inspect turntable and drive belt. Lo Wrapper – Service & Inspect turn table internals and drive chain. Contact STS Agent for Instructions or service call.
	d) Turntable VSD fault (if fitted)	Insufficient drive torque, possibly due to incorrect parameter set-up in VSD. Possible drive fault active. Check VSD fault indication refer test procedure 2.	If VSD not faulty Contact your STS agent for advice on VSD parameter checks. Hand held programming modules are required to communicate with VSD and are available on loan.
	e) Broken Chain /Belt or Belt Slipping.	Check Chain/Belt	Replace/adjust as required.
	f) Turntable Motor faulty	Have Qualified Electrician test Motor.	Contact your STS agent for spares.

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>CHECKS</b>	<b>REMEDY</b>
<b>10.2</b> Turntable does not rotate. Perform test procedure – 1 & 2.	g) Carriage did not successfully find home.	Does carriage move in Manual mode? Check if display indicates safety timer activated.	If Carriage does not move perform test procedure 3 or 4. If carriage moves refer to 10.6 “Safety Timer Activated”
	x) If none of the above, a fault may exist with the power board.		Contact your STS agent.
<b>10.3</b> Turntable does not stop at end of cycle. Perform test procedure – 6.	a) Turntable Proximity Switch out of range or faulty.	Does Prox LED light when flag passes it?	Adjust Prox, refer to Section 5.1.4 (Lo Wrappers) or Section 5.2.3 (Easy Wrappers) User Manual
	b) Incorrect parameter set up	Access Hidden set up screen, confirm appropriate parameters.	Refer to Section 4.3.2.3 (iii) User Manual.
<b>10.4</b> Turntable does not stop in home position.	a) Incorrect parameter set up	Access Hidden set up screen, confirm appropriate parameters.	Refer to Section 4.3.2.3 (iii) User Manual.
	b) Turntable prox not adjusted correctly.	288 pulses per revolution for Lo Wrapper, remove motor cover and check prox reads each flag. 1 pulse per revolution for Easy wrapper, observe prox count on display during cycle.	Adjust Prox, refer to Section 5.1.4 (Lo Wrappers) or Section 5.2.3 (Easy Wrappers) User Manual.

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>CHECKS</b>	<b>REMEDY</b>
<b>10.5 Mast Carriage does not move</b> Perform test procedure – 3 or 4.	a) Mast Motor fuse blown	Does Mast Carriage move in Manual mode? Refer Section 4.3.2.5 in User Manual.	Replace fuse, Refer Section 4.3.6 in User Manual. Spare fuses inside power board enclosure.
	b) Mast Motor faulty	Does Mast Carriage move in Manual mode? Refer Section 4.3.2.5 in User Manual.	Have Qualified Electrician test motor.
	c) Mast VSD fault (if fitted)	Insufficient drive torque, possibly due to incorrect parameter set-up in VSD. Possible drive fault active. Check VSD fault indication refer test procedure 4.	If VSD not faulty Contact your STS agent for advice on VSD parameter checks. Hand held programming modules are required to communicate with VSD and are available on loan.
	d) Broken Chain	Check Chain	Replace as required.
	e) Reversing relay on power board faulty.	Get Electrician to check relay.	Contact your STS agent for replacement.
	f) Control board fault	Does screen change when using arrow keys? Manually select Mast up, do both Mast & Mast Up Led on Power Board light up?	Cycle Power, while depressing "Return to Start" key to perform Initialise Variables Procedure. Access hidden set-up screen; see Section 4.3.2.3 in User Manual, and reconfigure machine type. Contact your STS agent if problem persists.



PROBLEM	POSSIBLE CAUSES	CHECKS	REMEDY
<p><b>10.6</b> Mast Carriage does not move Perform test procedure – 3 or 4.</p>	<p>g) Carriage sliders binding on guides (carriage will raise but not lower).</p>	<p><b>Caution:</b> This is a potentially hazardous fault, the carriage may no longer be supported by mast chain. <b>Do not stand under carriage as carriage may drop suddenly.</b> The mast carriage is lifted by the chain but lowers under its own weight. Select Manual mode and drive mast up, mast motor runs but carriage will not move until lifted by the chain.</p>	<p>Check for binding between carriage sliders and guide track. Grease sliders, and check shimming of sliders.</p>
	<p>h) Photo-eye out of range or faulty</p>	<p>The LED on top of Photo-eye should be lit when a load is on the Wrapper.</p>	<p>If LED not lit - eye not sensing pallet, adjust Photo-eye; refer to Section 4.3.4.2 in User Manual.</p>
	<p>x) If none of the above, a fault may exist with the power board.</p>		<p>Contact your STS agent.</p>
<p><b>10.7</b> Mast Carriage cannot find “Home”</p>	<p>a) Limit Switch out of range or faulty</p>	<p>Does “LLim” LED J3/4 on back of Control Board light when magnet is aligned with switch? (Carriage at lower limit.)</p>	<p>Adjust Limit Switch; refer to Section 5.4.2 in User Manual.</p>
<p><b>10.8</b> Safety Timer Activated</p>	<p>a) Top or bottom Limit Switch damage or malfunction.</p>	<p>Does “LLim on” and “Hlim on” LED on back of Control Board light when magnet is aligned with corresponding switch? (Carriage at lower or upper limit.)</p>	<p>Adjust Limit Switch; refer to Section 5.4.2 in User Manual. Perform checks outlined in Section 4.3.5 in User Manual. If limits are not detected carriage may drive to end of travel and cause damage. Safety timers are in place to minimise chances of this occurring.</p>
	<p>b) Limit Switch magnet dislodged or fouled.</p>	<p>Does “LLim on” LED on back of Control Board light when magnet is aligned with switch? (Carriage at lower limit.)</p>	<p>Adjust Limit Switch; refer to Section 5.4.2 in User Manual. Perform checks outlined in Section 4.3.5 in User Manual.</p>

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>CHECKS</b>	<b>REMEDY</b>
<b>10.9</b> Carriage does not stop at top of load (Photo-eye option).	a) Incorrect parameter set-up.	Check height input is set to eye.	Change height input parameter to eye.
	b) Photo-eye incorrectly Adjusted.	Does Photo-eye LED stay on when there is no load on wrapper, If so reduce sensing range.	The eye could be sensing something beyond the pallet, adjust Photo-eye; refer to Section 4.3.4.2 in User Manual.
	c) Faulty photo-eye.	Does LED change state when clear then blocked?, if not then fault with eye or wiring.	Test wiring using multi-meter, check for 12V DC between terminals 1 & 2 on the eye. Test function of switching output. Contact your STS agent for replacement.
<b>10.10</b> Carriage does not stop at top of load (Height input manually)	a) Wiring to mast travel prox switch damaged.	Remove Mast cover and inspect. Does Prox LED light when flag passes it?	Repair wiring or Contact your STS agent for replacement.
	b) Damaged or incorrectly adjusted prox.	Remove Mast cover and inspect. Does Prox LED light when flag passes it?	Adjust with 2mm gap (Refer Section 5.4.3 in User Manual). Contact your STS agent for replacement.
<b>10.11</b> No Power at Control Panel Perform test procedure – 5.	a) Wrapper not plugged in and turned on, Stop button pressed in.	Plug in, turn on and release Stop button.	
	b) Fault in wiring.	<b>Perform test procedure – 5.</b>	
	x) If none of the above, a fault may exist with the power board.		

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>CHECKS</b>	<b>REMEDY</b>
<b>10.12</b> Distribution board earth leakage detection trips while wrapper operating.	a) Other devices on same circuit. Combined earth leakage above limit.	Test on dedicated circuit.	Reduce number of machines on same circuit.
	b) Faulty power lead or outlet.	Test power lead and outlet.	Repair and replace as required.
	c) Faulty Turntable Motor.	In Manual mode, operate turntable only. If circuit protection is still tripped then have Electrician check motor.	Contact your STS agent for spares.
	d) Faulty Mast Motor.	In Manual mode, operate mast only. If circuit protection is still tripped, have Electrician check motor.	Contact your STS agent for spares.
	e) Machine has soft start option (VSD drive).	As part of EMC requirement the power supply to the VSD is filtered. This results in a current trickle to earth. This current on its own will not trip distribution RCD's, however, the RCD may trip when its leakage is combined with the leakage of other devices on the same circuit. Have Electrician check earth leakage is within limits.	Use dedicated circuit or unprotected circuit.
<b>10.13</b> Pallet Slips on turntable.	a) Pallet too light.		
	b) Turntable plate crowned.	Inspect turntable for flatness, check that circlip is in place on centre hub.	Contact your STS agent.
	c) Film tension too tight.		Adjust film tension.

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>CHECKS</b>	<b>REMEDY</b>
<b>10.14</b> Static electricity builds up on film carriage.	a) Film roll generates static when layers separate.	There are two types of film, blown and cast. Blown film is more susceptible to creating static due to its manufacture process. Cast film is less likely to create static.	Change to cast film, or connect pre-stretch arm to carriage body to discharge static to ground (Contact your STS agent).
<b>10.15</b> Locked up board (pressing keys will not change display)	a) Control board fault		Cycle Power, while depressing "Return to Start" key to perform Initialise Variables Procedure. Access hidden set-up screen; see Section 4.3.2.3 in User Manual, and reconfigure machine type. Contact your STS agent if problem persists.
<b>10.16</b> Gibberish in display	a) Control board fault		Cycle Power, while depressing "Return to Start" key to perform Initialise Variables Procedure. Access hidden set-up screen; see Section 4.3.2.3 in User Manual, and reconfigure machine type. Contact your STS agent if problem persists.

# 11 TEST PROCEDURES

## 11.1 Test procedure – 01 - Turntable does not rotate

### Unit with no VSD

1. Check turntable for physical obstructions. Lo wrapper turntable should be free to rotate by hand, however Easy wrapper gearboxes cannot be turn backwards because of their worm gear construction (This may change as the gearbox wears in).
2. On Easy wrappers check for belt slippage adjust if necessary.
3. Select Manual mode to run the turntable. If still not operating Isolate power to the wrapper.
4. Remove the Turntable motor cover, locate and remove the lid on the power board enclosure.
5. Inspect turntable fuse, replace if blown.
6. If fuse is not blown then re-apply power to the wrapper **Caution: power board now live.**
7. Select Manual mode to run the turntable.
8. Observe the **T'TBL** run LED on power board (Section 13), this should be lit. **If not lit go to step 11.**
9. Measure using a voltmeter – test for 240 V AC supply output to motor terminals – **Term 2 (T'TBLE)**, Power Board (Section 13).  
If no voltage then faulty power board, contact STS agent for spares.
10. If voltage present, test connection to motor, and motor itself. Contact STS agent for spares.
11. Remove control panel from mast so that back of the control board can be observed while operating the wrapper.  
  
While running the turntable observe the **J3/6 T Tab** run LED on back of control board (Section 12), this should be lit.
12. If LED is not lit then there is a fault with the control board. Contact STS agent for spares.
13. If LED on control board is lit but the LED on power board is not lit then there is a fault in the wiring between the control board and power board.

## **11.2 Test procedure – 02 - Turntable does not rotate**

### **Unit with VSD Soft start**

1. Select Manual mode to run the turntable.
2. Isolate power to the wrapper.
2. Remove control panel from mast so that back of the control board can be observed while operating the wrapper.

While running the turntable observe the **J3/6 T Tab** run LED on back of control board (Section 12), this should be lit.

If LED is not lit then there is a fault with the control board. Contact STS agent for spares.

4. Remove TT motor cover.
5. The VSD has a green and a red LED, green LED should be on solid, not flashing. The red LED should be off.

Check terminations to I/O (input/output) card on VSD are secure.  
Have an Electrician test VSD.

Green on solid, Red off – VSD Enabled, Green flashing, Red off – VSD inhibited,  
Green off, Red blinking every second – Fault active.

6. Have an Electrician check motor and terminations.
7. If required use programming puck available from STS to test and adjust setting of VSD. Contact STS for availability of programming puck and instruction.

### **11.3 Test procedure – 03 - Mast Carriage does not move (no VSD fitted)**

#### **Unit with no VSD**

1. Check carriage for physical obstructions, and/or broken chain.
2. Isolate power to the wrapper.
3. Remove the Turntable motor cover, locate and remove the lid on the power board enclosure.
4. Inspect mast motor fuse, replace if blown and re-test wrapper.
5. If fuse is not blown then re-apply power to the wrapper **Caution: power board now live.**
6. Select Manual mode to drive carriage up.
7. Observe the **Mast On** and **Mast Up** LEDs on power board (Section 13), both should be lit. **If not lit go to step 10.**
8. Measure using a voltmeter – test for 240 V AC supply output to motor terminals –Power Board (Section 13).

Supply to Run winding – polarity depends of motor direction selected.

**Term 3 (MAST) White to Orange - 240 AC**

Supply to Start winding

**Term 3 (MAST) Brown (Start winding - Active) to Term 1 (Supply - Neutral) Blue or Black – 240 AC**

If no voltage then fault is in power board, check pole change relay operation and replace if necessary. Contact STS agent for spares.

9. If voltage present test connection to motor, and motor itself. Contact STS agent for spares.
10. Remove control panel from mast so that back of the panel can be observed while operating the wrapper.  
  
While Manually driving the mast up observe the **J3/7 Mast** and **J3/8 M Up** LED on the back of control board (Section 12), both should be lit.
11. If LED is not lit then there is a fault with the control board. Contact STS agent for spares.
12. If LED on control board is lit but the LEDs on power board are not lit then there is a fault in the wiring between the control board and power board.

## **11.4 Test procedure – 04 - Mast Carriage does not move (VSD fitted)**

### **Unit with VSD**

1. Isolate power to the wrapper.
2. Check carriage for physical obstructions, and/or broken chain.
3. Remove control panel from mast so that back of the panel can be observed while operating the wrapper.
4. Remove turntable motor cover.
5. Re-apply power to the wrapper taking care not to contact any exposed wiring especially on the power board.
6. Select Manual mode to drive carriage up.
7. While manually driving the mast up observe the **Mast On** and **Mast Up** LEDs on power board (Section 13), both should be lit.

If LEDs not lit then fault is in control board.

8. The VSD has a green and a red LED, green LED should be on solid, not flashing. The red LED should be off.

Check terminations to I/O (input/output) card on VSD are secure.  
Have an Electrician test VSD.

Green on solid, Red off – VSD Enabled, Green flashing, Red off – VSD inhibited,  
Green off, Red blinking every second – Fault active.

9. Have Electrician check motor and terminations.
10. If required use programming puck available from STS to test and adjust setting of VSD.  
Contact STS for availability of programming puck and instruction.



### **11.5 Test Procedure – 05 - No Power – Control Panel Not Active**

1. Check power lead plugged in and power turned on.
2. Check stop button – turn to release.
3. Turn off power, remove turntable motor cover, locate power board enclosure and remove cover.
4. Turn on power **Caution: power board now live.** Observe Power On LED illuminated, if not test power supply.
5. If **Power On LED** illuminated, remove **Control Board plug** from power board, test for 12V DC supply at power board **Terminals 12V (Red & Brn), 0V (Blue & Black)** Power Board (Section 13). If no 12V supply then fault in power board. Contact STS agent for spares.
6. If 12V DC available at power board, suspect fault in wiring to Control Board.  
Replace **Control Board plug**, remove control panel, check control board 12V led.
  - If not lit check wiring between power and control boards, check Stop button contactor block for continuity.
  - If lit then faulty control board. Contact STS agent for spares.

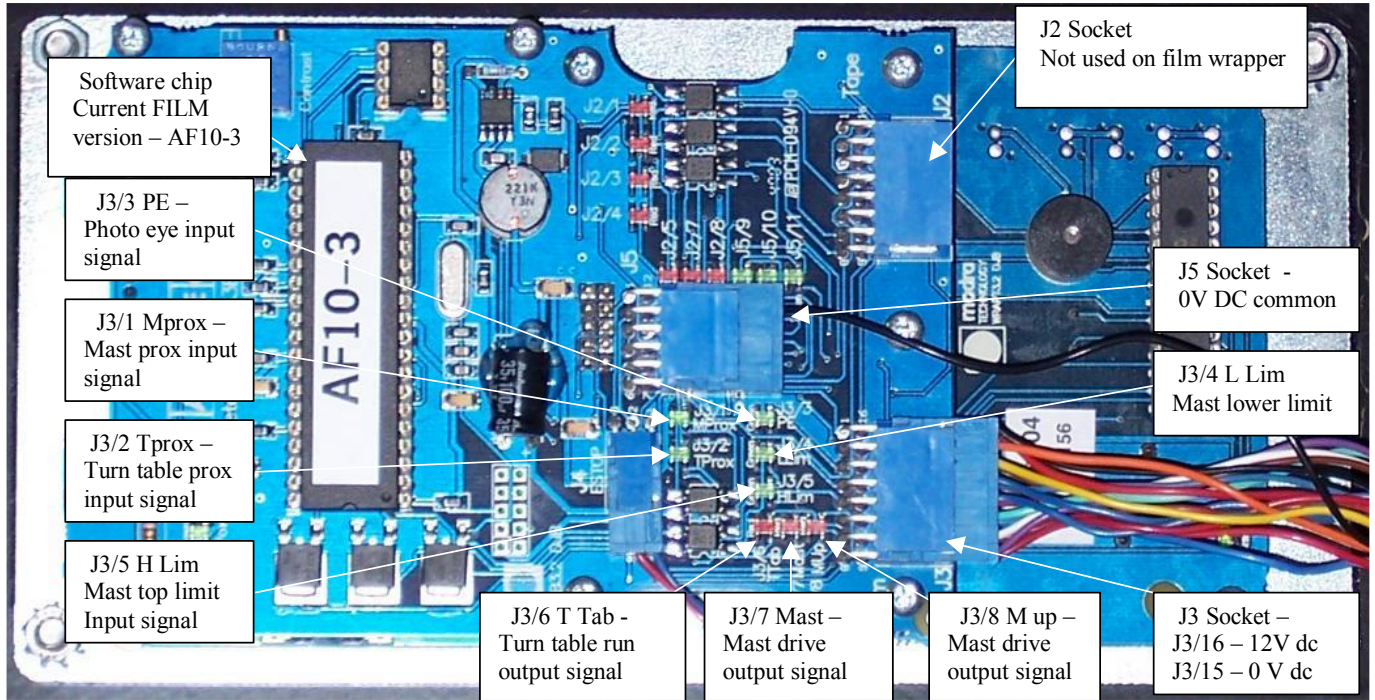
## **11.6 Test procedure – 06 - Mast Carriage not wrapping to correct height**

1. Observe mast proximity count on screen while running cycle, count should be as fast as is possible to read. (only stopping when mast stops).  
Alternatively observe LED on mast prox.
2. Check and adjust proximity switch as required.

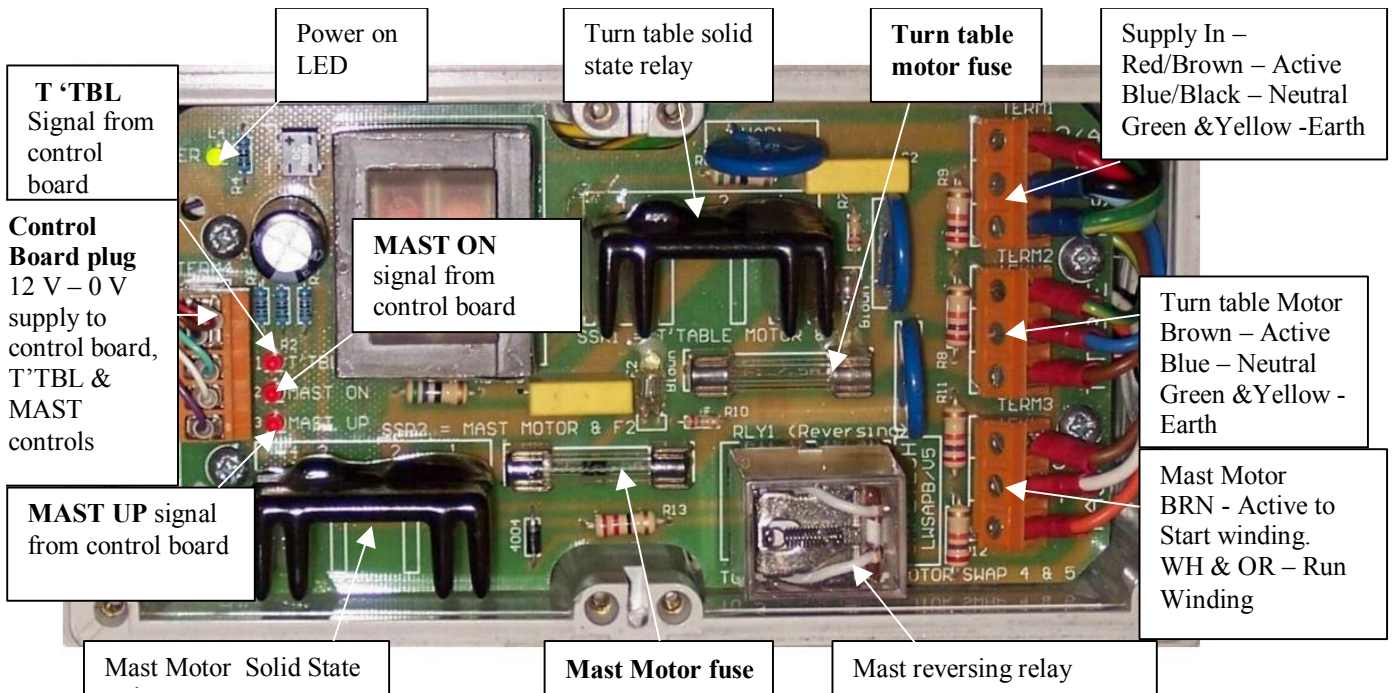
### **Photo-eye option machine:**

3. Observe that photo-eye LED is on when no load in front of eye, and switches off when eye is blocked - **Go to step 8.**
4. If LED does not light or stays on - check and adjust range sensitivity - Refer to Section 4.3.4.2. Photo-eye range could be adjusted too short or too long. If too short then the eye will not see the load, If too long then the eye may be looking at obstruction beyond the turntable. Both scenarios will have undesirable effects.
5. If the LED does not turn off then it is faulty and should be replaced - Contact Safetech agent for spares.
6. If the LED does not light at all test for supply voltage between terminals 1 & 2 at the eye. Supply voltage should be 12V DC.  
  
If supply present then eye is faulty - Contact STS agent for spares.
7. Remove control panel from mast so that back of the panel can be observed while operating the wrapper.
8. Test eye input to control board (Section 12), **J3/3 PE** LED is **on** when photo-eye is blocked (Eye LED off), and **off** when the photo-eye is clear (Eye LED on).
9. Check setting of eye delay on control board. The eye delay setting at the control board is generally 2.16 seconds.

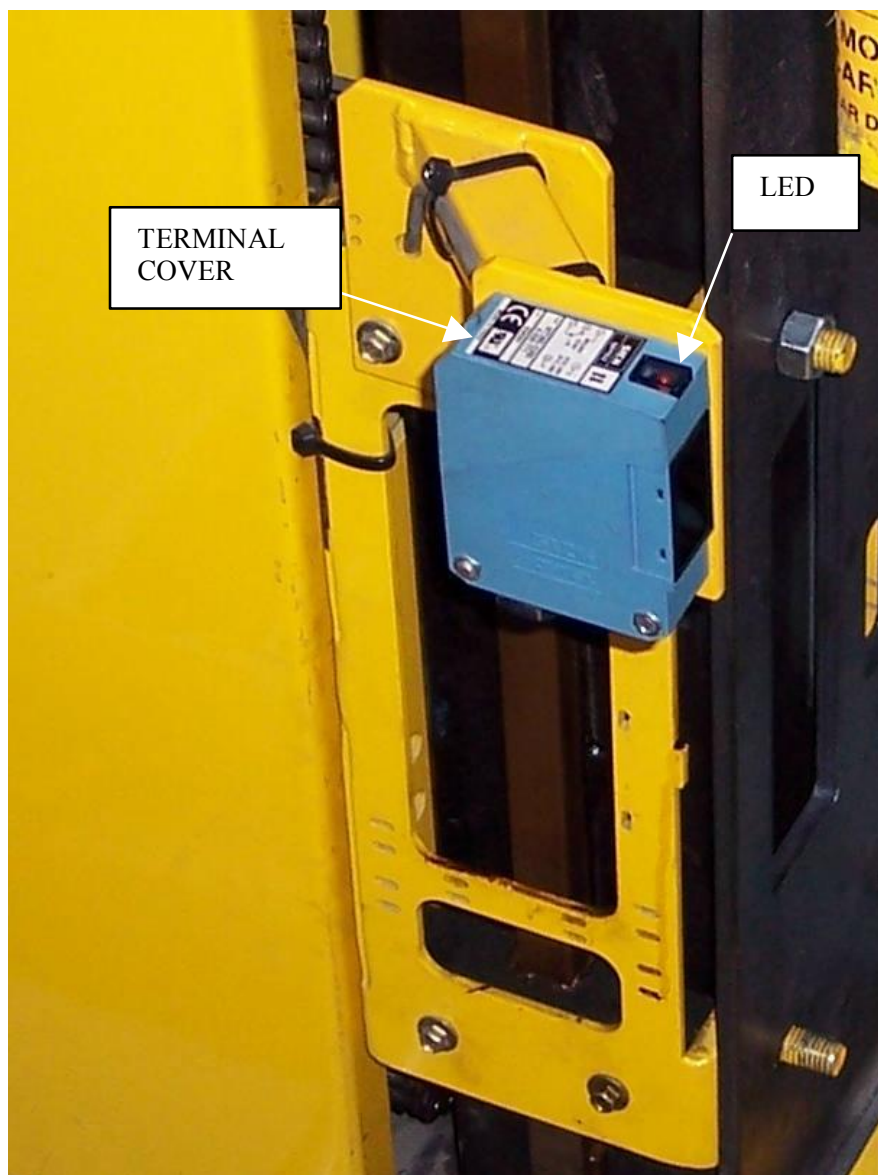
## 12 Control Board



## 13 Power Board – (No VSD)

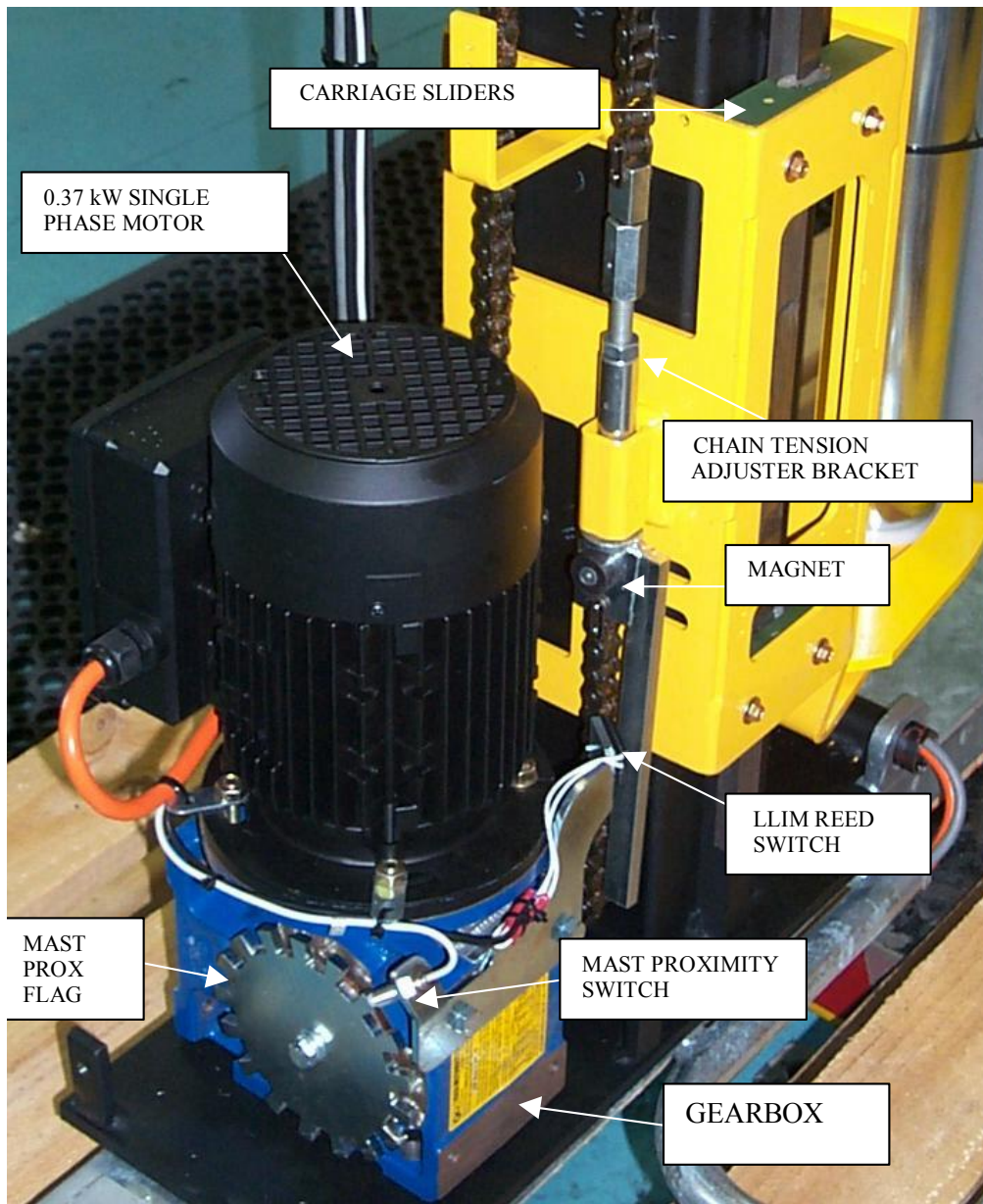


## 14 Photo-eye

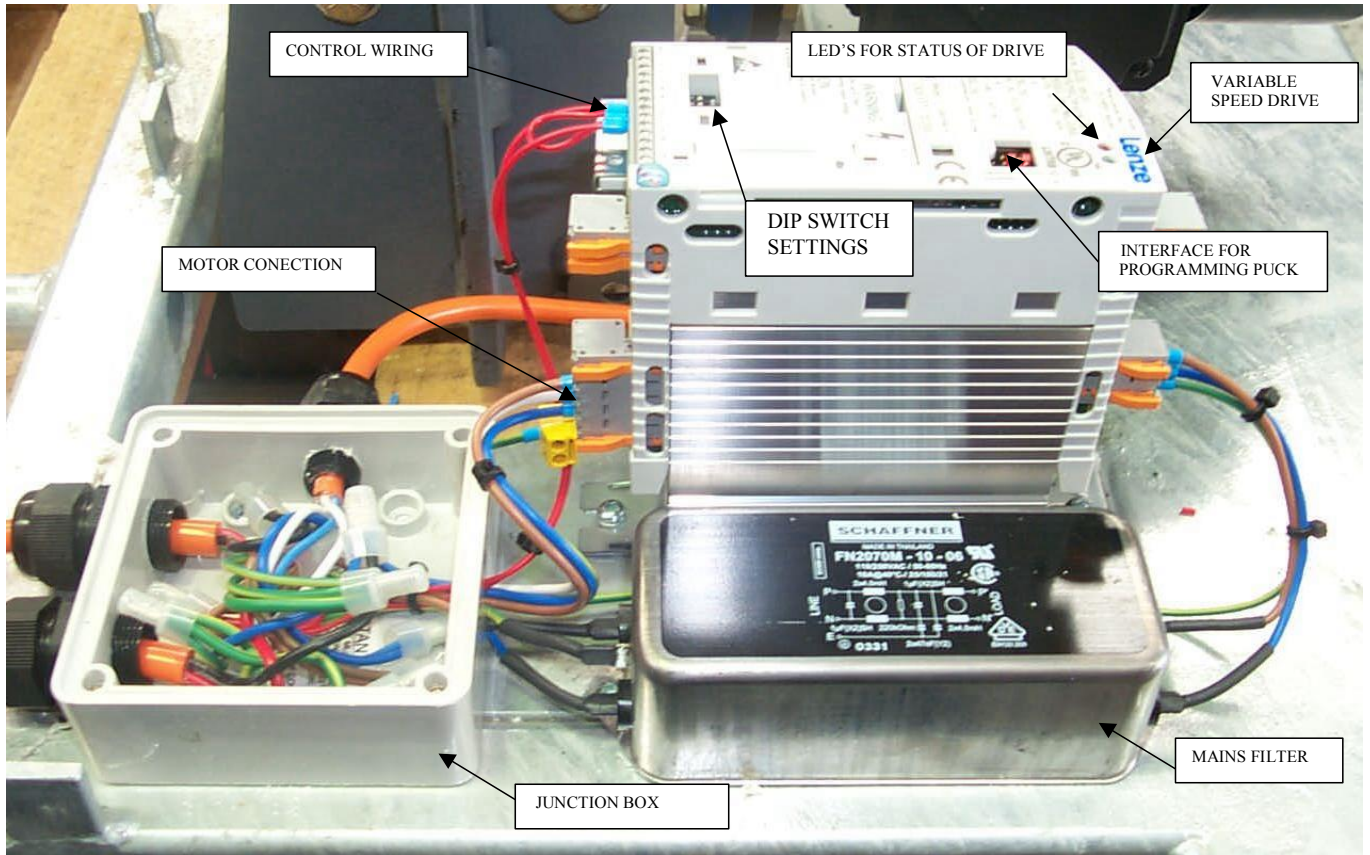




## 15 Mast Drive/Proximity Switch/Lower Limit



## 16 VSD Drive



## 17 Lo Wrapper Turntable Drive Assembly



## 18 **WARRANTY**

Refer Separate STS Standard Warranty Document.



## **19 HAZARD IDENTIFICATION, RISK ASSESSMENT AND CONTROL FOR WRAPPER**

### **19.1 Electrocuting**

The Wrapper requires 240V, 50Hz power supply. There is the potential for electrical leakage and injury if the electrical system is damaged.

#### **19.1.1 Risk assessment**

The risk of damage to the electrical system is low, although this should be assessed by employers in situ. An electric shock may cause serious injury or even death.

#### **19.1.2 Control measures**

##### *Earth leakage protection*

Ensure that earth leakage protection is provided at the power outlet.

##### *Qualified electrical labour*

Ensure that only a qualified electrician is permitted to work on the electrical system.

##### *Training*

Operators should be trained to inspect cabling daily for damage. If any damage is found, the machine should be turned off at the supply and repaired by a qualified electrician. Ensure that the Wrapper is unplugged during maintenance.

### **19.2 Fall**

The turntable rotates at 9rpm. A person stepping onto the turntable may fall over.

#### **19.2.1 Risk assessment**

The risk of accidentally stepping onto the turntable while it is rotating is low. For Manual Mast versions, the turntable is operated with a deadman footswitch. That is, the turntable will not operate unless the footswitch is pressed. Semi-Automatic Wrappers are controlled with a push key and do not start automatically. Usually, the turntable would only be in operation while it was loaded.

Any injuries sustained would generally be minor unless the environment was hazardous.

#### **19.2.2 Control measures**

##### *Counterweighted Manual Mast Wrapper - Deadman control*

The counterweighted Manual Mast version of the Wrapper is operated by a deadman footswitch control. This means that it is switched off as soon as the operator takes his or her foot off the control.

### *Chequerplate surface*

The turntable is constructed from chequerplate steel. This surface is designed to provide extra grip and is less likely to be slippery.

### *Training of personnel*

Operators should be trained to ensure that all personnel are clear of the Wrapper before operation and that no one rides on the turntable while in motion.

## **19.3 Collision**

A large or poorly positioned load may protrude from the turntable and strike a passer-by as it rotates.

### **19.3.1 Risk assessment**

The risk of collision will differ in individual work environments. A risk assessment taking into consideration the size of pallets and the consistency of correct positioning on the turntable should be performed by employers. Please note that although the turntable rotates at only 9 rpm, the corners of a large load could move quite swiftly. The load and Wrapper are quite visible and the risk of collision would generally be low.

The degree of injury would depend on the nature of the load involved, but serious injury would be unlikely.

### **19.3.2 Control measures**

#### *Easy Wrapper Turntable diameter*

The turntable diameter is 1400mm, which is larger than the dimensions of a standard Australian pallet and makes the central positioning of standard size loads less critical. For this reason, the risk is low in most circumstances.

#### *Counterweighted Manual Mast Wrapper - Deadman control*

The counterweighted mast version of the Wrapper is operated by a deadman footswitch control. This means that it is switched off as soon as the operator takes his or her foot off the control. If the operator was struck by the load and fell over, the turntable rotation would cease.

#### *Semi-Automatic Wrapper - Stop button*

A red raised head stop button is included in the controls of the Semi-Automatic Wrapper. The stop button can be used to stop the Wrapper instantly if a collision is foreseen.

#### *Operator training*

Ensure that all operators are familiar with the contents of this manual and are trained to check that the area is clear before using the Wrapper. Alert all staff to the danger of collision with a turning load.

## **19.4 Crush injury from falling Manual Mast**

The mast of the counterweighted Manual Mast Wrapper is hinged at the base to allow easy storage. When the Wrapper arrives, the mast is in the folded position for transport. To install the Wrapper, the mast needs to be erected with bolts used to secure it. It is possible that the mast could fall if not properly secured.

### **19.4.1 Risk assessment**

The mast is not difficult to erect and the risk of falling is low if the correct procedure is followed. Minor and possibly serious injuries could be sustained if the mast fell over.

### **19.4.2 Control measures**

Ensure that personnel erecting the mast have read and understood the instructions in this manual. At least two people should be involved. Ensure that the locking bolts are tight.

## **19.5 Tripping**

The Easy Wrapper's turntable is 110mm high, while the Lo Wrapper turntable is 26mm high. It is possible to trip over the turntable.

### **19.5.1 Risk assessment**

The Wrapper is a large conspicuous machine, painted a bright safety yellow. The risk of tripping is very low and any injuries sustained are likely to be minor.

### **19.5.2 Control measures**

The Wrapper is painted a bright safety yellow for excellent visibility.

## **19.6 Blow from moving film carriage**

The film regularly needs to be changed as rolls are consumed. At this time, the carriage on Manual Mast versions must be locked down to prevent it from moving to the top of the mast. If the lock down is not used, the operator would need to hold down the carriage until the new roll of film is in place, which is difficult. If the carriage is accidentally released before the new roll is in place, the carriage or handle may strike personnel standing very close to the mast or leaning over the carriage.

### **19.6.1 Risk assessment**

If the carriage is released while empty, there is a medium risk of injury. Injuries sustained could be serious. If the safety catch is engaged as instructed in this manual before the roll is removed, the risk of injury is very low.

### 19.6.2 Control measures

The Manual Mast Wrapper is fitted with a safety catch that restrains the carriage while the film roll is being removed. This should always be engaged before attempting to remove a film roll.

## 19.7 Pinch injuries

A pinch point is created as the Manual Carriage travels up the mast.

### 19.7.1 Risk assessment

The risk of injury is extremely low. Injuries would be most likely to be minor but could be more serious.

### 19.7.2 Control measures

#### *Mast design*

The Manual Mast version of the Wrapper has a large, smooth, open channel and the movement of the carriage is manual. The Semi-Automatic Mast does not have crevices that could trap fingers and the carriage is flush with the mast.

#### *Training*

Ensure that the Wrapper is unplugged when maintenance is undertaken and that the safety catch on the Manual Film Carriage is engaged.

## 19.8 Crushing injuries

A crushing hazard is created between the carriage and the floor when the carriage travels down the mast.

### 19.8.1 Risk assessment

The risk of injury is low. Injuries would be most likely to be minor but have the potential to be serious.

### 19.8.2 Control measures

#### *Mast design*

The downward travel of the Semi-Automatic carriage is controlled by its weight resting on the Chain Tensioner assembly, ie it is not fixed to the drive chain. Therefore if the carriage hits an obstacle it will stop. The travel of the Manual Mast Wrapper carriage is directly operator-driven and has a counterweight to make its operation easy.

#### *Training*

Ensure that the operator is aware of the hazard. The operator should not force the carriage down rapidly on the Manual Mast Wrapper. The operator should not place any part of their body beneath the carriage on any Wrapper.

## 19.9 **Entrapment**

An entrapment hazard is created between the Wrapping Film and the goods being wrapped.

### 19.9.1 Risk assessment

The risk of injury is low. Injuries would be most likely to be minor but have the potential to be serious.

### 19.9.2 Control measures

#### *Counterweighted Manual Mast Wrapper - Deadman control*

The counterweighted mast version of the Wrapper is operated by a deadman footswitch control. This means that it is switched off as soon as the operator takes his or her foot off the control. If the operator became entrapped and was spun a short distance by the turntable, the turntable rotation would cease.

#### *Operator training*

Ensure that all operators are familiar with the contents of this manual and are trained to keep clear of the area where the film comes into contact with the goods being wrapped. Alert all staff to the danger of entrapment on a wrapping machine.

## **20 STS PRODUCT RANGE**

STS is an Australian designer and manufacturer of materials handling equipment. In 1984 a doctor lawyer and engineer formed the company to market the PALIFT a unique load-levelling device. Since then thousands of PALIFTS have been sold throughout Australia and in 14 other countries. In addition to PALIFT, STS manufactures an extensive range of material handling products designed to increase productivity and reduce injuries.

Products in the STS range include:

### **Automatic height adjusting pallet leveller**

PALIFT is an Australian device designed to make manual loading of pallets safer, faster and easier. PALIFT automatically maintains the height of the pallet as it is loaded so it remains at the ideal height for manual loading, avoiding the risk of back injury. Thousands of PALIFTS are now in use both in Australia and overseas.

PALIFT employs a spring and scissor mechanism, which is simple, easy to use and requires virtually no maintenance. The PALIFT also incorporates shock absorbers, which prevent any bouncing that may occur as the pallet is loaded.

A turntable is often built into PALIFT to allow operators to rotate the load for easy loading without stretching. Mobile models are also available so that PALIFT can be relocated easily without the use of a forklift or pallet truck.

### **Hydraulic Lift Tables**

A range of scissor lift tables of up to 7000 kg capacity. Lift tables are used to lower or elevate goods at the touch of a button. Typical uses include the loading and unloading of pallets, positioning of goods at the right height to suit individual workers, and movement of goods at loading docks from one level to another. The Tables are built to withstand the rigours of harsh industrial conditions and can be modified to suit different applications.

### **Airbag Lift Tables**

STS manufacture lift tables utilising an Airbag actuator. The tables have a small base area, have a lift/stroke of 530mm and capacity of 400 kg. These tables are used to lower or elevate goods at the touch of a button. Typical uses include, positioning of goods, Stillage frames, and trolleys to be at the correct height to suit individual workers or machinery stations. The Tables are built to withstand the rigours of harsh industrial conditions and can be modified to suit different applications

## **Low Profile Stretch Wrapper - Lo-Wrapper**

Stretch wrapping by hand is dangerous and inefficient. Back injuries can result from the stress caused as the worker stoops and stretches to wrap the load. The practice of walking several times around a load is also time consuming. The time taken to wrap a load can be almost halved with the assistance of a wrapping machine and the risk of injury avoided. Most stretch wrapping machines are expensive and can only be loaded with a forklift. At only 26 mm high, Safetech's Lo-Wrapper can be loaded easily with a hand pallet truck and is inexpensive. Productivity gains alone can return the investment in Lo-Wrapper within one year.

## **Basic stretch wrapper - Easy Wrapper**

The Easy Wrapper is a cost effective Stretch Wrapper for those companies which have forklifts available. Easy Wrapper is durable and well built, with a 1400mm chequerplate turntable and like Lo-Wrapper, has a 2000 kg capacity.

Easy Wrapper has a single phase 240 Volt motor and forklift sockets are fitted to the base for easy relocation.

## **Stretch tape - Easy Wrapper**

The Stretch Tape Easy Wrapper (Tape Wrapper) is the unique semi automatic applicator designed to apply 3M stretchable load containment tape. It is the machinery component of the Stretch Tape Pallet Stabilising System developed jointly by STS Australia and the giant 3M Corporation of the USA. The Tape Wrapper is highly effective at preventing back strain and injury the most common of all workplace injuries (1994 Worksafe Australia). It eliminates the dangerous and time-consuming practice of stretch tape application by hand. As employers have become more aware of Occupational Health and Safety issues tape application by hand has become less viable.

## **Gorbel workstation cranes**

Workstation cranes allow workers to lift and shift items around the workplace with ease. Gorbel workstation cranes have an enclosed track design, which makes the movement of heavy items three times easier than with traditional I-beam cranes. The cranes deliver a 100:1 productivity ratio. That is, an operator can move a 500kg loaded bridge with only 5kg of force. This translates into productivity increases of up to 28% above that of I-beam cranes and fewer injuries.

The Gorbel system does not require articulated hangers that allow the Crane Bridge to sway. This means that workers can position items with ease and precision.

Apart from the operation and health and safety benefits, Gorbel cranes are reputed for

their long life, are lightweight, easy to install and are suitable for high duty cycles. The enclosed track design means that the rolling surfaces remain clean, increasing the lifespan of the rollers. The unique tapered track, keeps the rollers centred and minimises friction. This makes movement easier and greatly extending roller lifespan.

Gorbel's workstation systems include freestanding workstation bridge cranes, ceiling mounted bridge cranes and monorails and workstation jib cranes.

Accessories available include, Tractor drives for the Bridge and/or Runways, G-Force™ Hoist, and End Effectors designed to suit specific applications.

The G-Force™ is a servo-powered lifting device that enables you to lift loads and manipulate objects like it was an extension of your own arm.

### **Turntables - Paldisc and Palring**

STS offers two types of turntables:

*Palring* is light, easy to relocate, yet durable, and has a capacity of 2000 kg. Fully galvanised with sealed ball bearings, Palring is a quality turntable that won't bind under load.

*Paldisc* is a 2000 kg capacity patented turntable designed to allow pallets to be placed on or removed from the turntable using only a hand pallet truck. The load can then be rotated to the worker's fingertips with less need for stretching during the loading or unloading. Less back stress reduces the risk of injury and increases productivity. With a total height of only 22 mm and a built-in shallow ramp, Paldisc offers 360 degree access by hand pallet truck, eliminating the need for a fork lift.

### **Powered trolley - Powerlift DC250**

Workers in administration, health and manufacturing often need to lift and move heavy or bulky items from one area to another. These tasks can be safe and effortless with the new Powerlift DC250 trolley. It allows users to raise or lower goods at the touch of a button and has large wheels so that it is easy to push with its load. The trolley is designed and manufactured in Australia in accordance with ergonomic principles. With a capacity of 250kg, the Powerlift DC250 will lift a wide variety of loads and will perform all day without needing to be recharged in almost all cases.



## **Pallet Inverters - INV2000**

STS manufacture a range of Pallet Inverters that are robust and proven in a variety of environments. Users benefit by avoiding double handling of products and reducing the risk of injury to workers by eliminating manual stacking and restacking of pallets. STS pallet inverters are capable of handling widely varying load dimensions and weights of up to 2000kgs.

## **Pallet Tilters**

A range of Pallet Tilters of up to 2000 kg capacity. Tilters are used to rotate goods through 90 degrees using push button controls. Typical uses include the loading and unloading of pallets. The Tilters are built to withstand the rigours of harsh industrial conditions and can be modified to suit different applications.