3M-Matic[™] 800a Side Belt Adjustable Case Sealer

Specifications

Box:

Style: Regular slotted container (RSC)

Bursting test: 125 to 275 lbs. per sq. inch single or double wall, B or C flute.

 Size:
 Min
 Max

 Length
 6" [150mm]
 No limit

 Width
 4.5" [115mm]*
 21.5" [546mm]

 Height
 4.75" [120mm]**
 24.5" [622mm]

* 5.5" [140mm] with the 3M-Matic™ 800a3.

** 4.25" [108mm] with compression rollers removed.

Special modifications may be available for carton sizes not listed above. Contact your 3M sales representative for information.

Note: The 3M-Matic™ 800a Side Belt Adjustable Case Sealer can accommodate most boxes within the size range listed above. However, if

Box Length in Direction of Seal is less than .6

boxes should be test run to assure proper machine performance. Also, some wide/short boxes will require the removal of the compression rollers.

Min

Max 85 lbs. [38kg]

Box Weight: 5 lbs. [3kg]

Packing: Contents must support flaps.

Tape:

Scotch™ brand pressure sensitive film box sealing tapes.

Width: For 800a and 800ab — 1.5" [36mm] minimum to 2" [50mm] maximum. For 800a3 — 2" [50mm] minimum to 3" [72mm] maximum. Roll diameter: up to 16" [405mm] maximum on a 3" [76,2mm] diameter core. (Accommodates all system roll lengths of Scotch™ brand film tapes.)

Tape application leg length: 2.75" ± .25" [70mm ± 6mm]

Machine:

Power: Electrical - 115 V, 60Hz, 2.8A, 315 watts.

Motor horsepower (per motor):

Starting — 1/9 Hp

Running — 1/6 Hp

The machine is equipped with a standard 8 ft. [2,4m] neoprene covered power cord and a grounded plug. Contact your 3M sales representative for power requirements not listed above.

Weight:

390 lbs. [177kg] crated

350 lbs. [160kg] uncrated

Operating rate: Up to 30 boxes/minute.

Equipment Warranty and Limited Remedy: THE FOLLOWING WARRANTIES ARE MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABLITY, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, A CUSTOM OR USAGE OF TRADE:

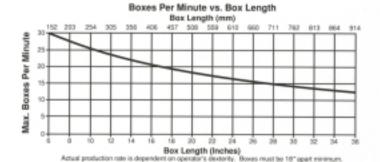
3M sells its 3M-Matic¹⁶ 800a, 800ab and 800a3 Side Belt Adjustable Case Sealers with the following warranties:

- The Taping Head knife blades, springs and rollers will be free from all defects for ninety (90) days after delivery.
- 2. All other Taping Head parts will be free from all defects for three (3) years after delivery.
- All other parts will be free from all defects for two (2) years after delivery.
- If any part is proved to be defective within its warranty period, then the exclusive remedy and SM's and seller's sole obligation shall be, at 3M's option, to repair or replace the part, provided the

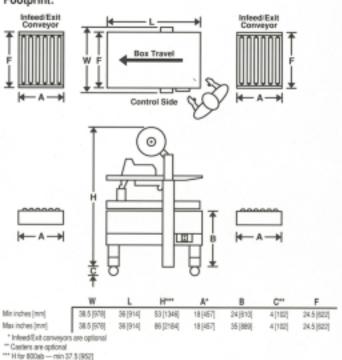
Box drive belt speed: Approx. 78 fpm [.4 m/s]

Operating conditions: Use in dry, relatively clean environments at 40°F to 105°F [5°C to 40°C] with clean, dry boxes.

Machine should not be washed down or subjected to conditions causing moisture condensation on components.



Footprint:



defective part is returned immediately to 3M's factory or an authorized service station designated by 3M. A part will be presumed to have become defective after its warranty period unless the part is received or 3M is notified of the problem no later than five (5) celendar days after the warranty period. If 3M is unable to repair or replace the part within a reasonable time, then 3M, at its option, will replace the equipment or refund the purchase price. 3M shall have no obligation to provide or pay for the labor required to install the repaired or replacement part. 3M shall have no obligation to repair or replace (1) those parts failing due to operator misuse, carelessness, or due to any accidental cause other than equipment failure, or (2) parts failing due to non-lubrication, inadequate cleaning, improper operating environment, improper utilities or operator error.

Limitation of Liability: 3M and seller shall not be liable for direct, indirect, special, incidental or

Limitation of Liability: 3M and seller shall not be liable for direct, indirect, special, incidental or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability or any other legal theory.

The foregoing Equipment Warranty and Limited Remedy and Limitation of Liability may be changed only by a written agreement signed by authorized officers of 3M and seller.

"3M-Matic," "AccuGlide" and "Scotch" are trademarks of 3M.

70-0704-5560-8 (181) BE

© 1992 3M

Innovation working for you™

3M

The 3M-Matic™ 800a Side Belt Adjustable Case Sealer

Practicality by design





3M-Matic[™] 800a Side Belt Adjustable Case Sealer

Part of a new generation of case sealers that's shaping the future of packaging

3M-Matic™ case sealers are specially designed to be versatile and productive. They're sturdy, compact and easy to install. And the new low impact AccuGlide™ II taping head represents 3M's commitment to innovation as the industry leader in case sealing systems.

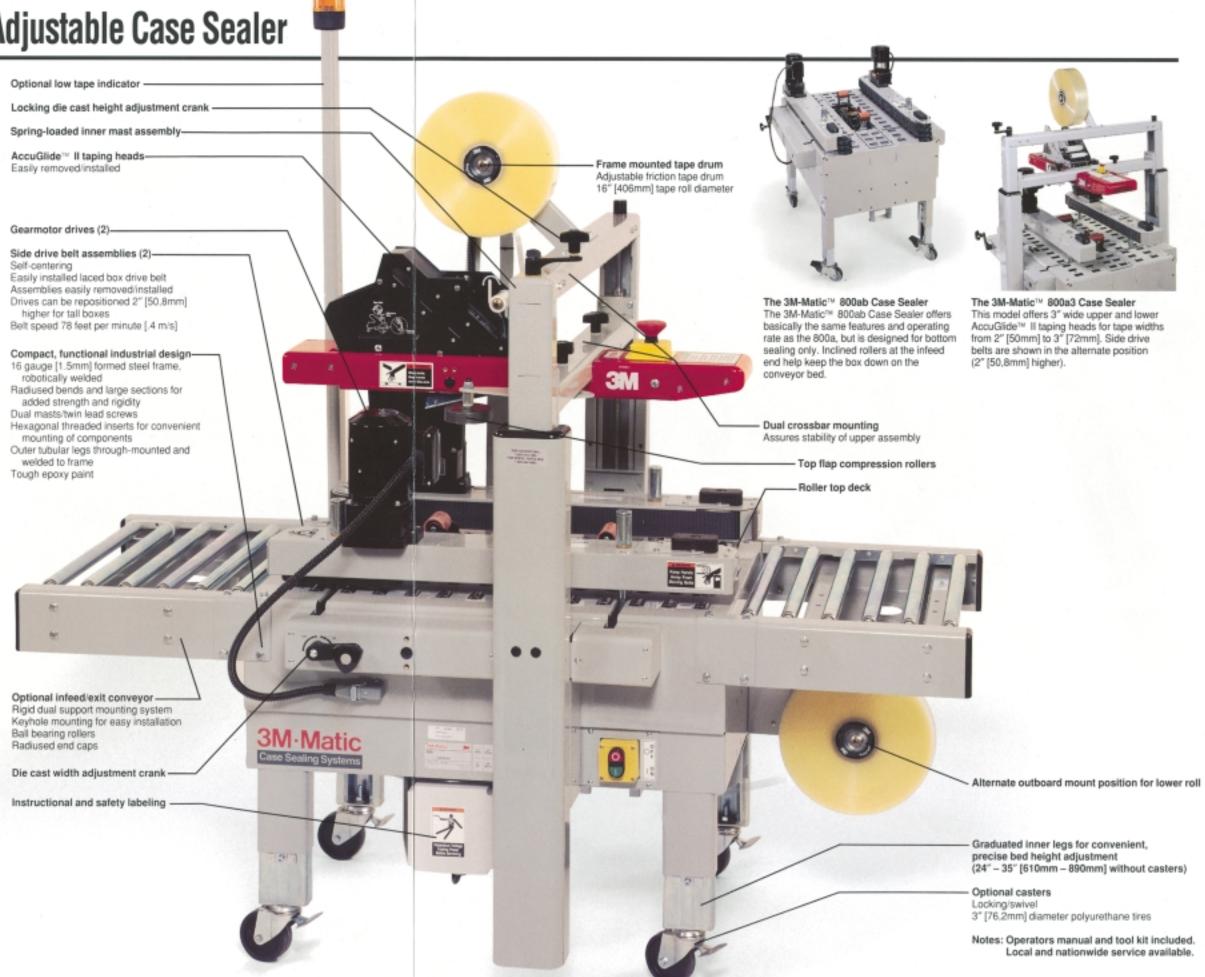
The new 3M-Matic™ 800a Side Belt Adjustable Case Sealer is a semiautomatic case sealer that puts tight, consistent seals on regular slotted containers in one operation — at a rate of up to 30 cases per minute. Its spring-loaded side drive features twin gearmotors for heavy-duty performance. And the side belt drive allows a broader range of box weights and sizes to pass through — the side drives are even repositionable 2" [50,8mm] higher to provide greater stability for taller boxes. Three case sealer models are available: the 800a which comes with 2" wide taping heads, and the 800ab for bottom taping only with a 2" wide taping head.

Standard features include compression rollers that position each box for precise tape sealing; dual masts with twin lead screws to provide extra stability and to allow for uniform height adjustment; an upper tape roll bracket attached to the machine for easier tape mounting; friction brake drums to prevent tape overrun and provide more consistent tape application; an easy-to-reach outboard tape roll mount for the lower head; and easy-to-install laced replacement belts. Plus, the controls can be relocated from standard left side to right side operation. Additional features are available as options.



AccuGlide™ II taping head

3M's advanced, low impact AccuGlide™ II taping head with its curvilinear track insures that even lightweight corrugated cartons are securely and carefully sealed. It provides positive tape starting and precise tape application. The spring-mounted upper taping head compensates for overpacked boxes. Applies standard 2.75 inch [70mm] tape leg lengths. Taping heads can be adjusted to apply 2.00 inch [50mm] leg lengths. A built-in blade oiler pad helps prevent adhesive buildup. The AccuGlide™ II taping head comes with a 90 day warranty on knife blades, springs and rollers and a 3 year warranty on all other parts.



3M

Instructions and Parts List

3M-Matic[™]

800a3

Type 39600

Adjustable

Case Sealer

with

AccuGlide II Taping Heads

Serial No.

3M Masking and Packaging Systems Division

For reference, record machine serial number here.



Important Safety Information

Read Important Safeguards, pages 3-5 and also operating "Warnings", page 16 BEFORE INSTALLING OR OPERATING THIS EQUIPMENT.

Spare Parts

It is recommended you immediately order the spare parts listed on page 35. These parts are expected to wear through normal use and should be kept on hand to minimize production delays.

"3M-Matic"and "AccuGlide" are Trademarks of 3M, St. Paul, MN 55144-1000

To Our Customers:

This is the 3M-Matic[™]/AccuGlide[™]/Scotch[™] brand equipment you ordered. It has been set up and tested in the factory with "Scotch" brand tapes. If technical assistance or replacement parts are needed, call or Fax the appropriate number listed below.

Included with each machine is an Instructions and Parts List manual.

Technical Assistance:

3M-Matic[™] Helpline – 1-800/328 1390. Please provide the customer support coordinator with the machine number, machine type/model and serial number. If you have a technical question that does not require an immediate response, you may Fax it to 715/381 0248.

Replacement Parts and Additional Manuals

Order parts by part number, part description and quantity required. Also, when ordering parts and/or additional manuals, include machine name, number and type. A parts order form is provided at the back of this manual.

3M/Tape Dispenser Parts

241 Venture Drive 1-800/344 9883

Amery, WI 54001-1325 FAX# 715/268 8153

Minimum billing on parts orders will be \$25.00. Replacement part prices available on request. \$10.00 restocking charge per invoice on returned parts.

Note: Outside the U.S., contact the local 3M subsidiary for parts ordering information.



To Our Customers:

This is the 3M-Matic[™]/AccuGlide[™]/Scotch[™] brand equipment you ordered. It has been set up and tested in the factory with "Scotch" brand tapes. If any problems occur when operating this equipment, and you desire a service call, or phone consultation, call, write or Fax the appropriate number listed below.

Included with each machine is an Instructions and Parts List manual.						
	CE, REPLAC ABLE DIREC		TS AND ADI	DITIONAL MA	ANUALS	

Order parts by part number, part description and quantity required. Also, when ordering parts and/or additional manuals, include machine name, number and type.



1-800/328 1390

3M, St. Paul, Minnesota 55144-1000

"3M-Matic", "AccuGlide" and "Scotch" are trademarks of

Instruction Manual

800a3, Type 39600 Adjustable Case Sealer

This instruction manual is divided into two sections as follows:

Section I	Includes all information related to installation, operation and parts for the case sealer.
Section II	Includes specific information regarding the AccuGlide $^{\text{TM}}$ II STD 3 Inch Taping Heads.

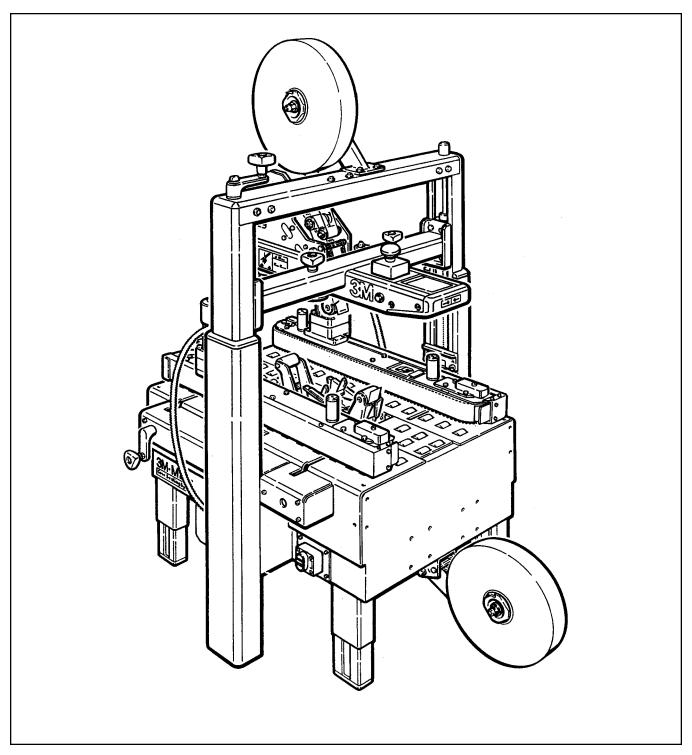
Table of Contents	Page
Section I – 800a3 Adjustable Case Sealer	
Description	1
Equipment Warranty and Limited Remedy	2
800a3 Contents	2
Important Safeguards	3 - 5
Specifications	7 - 9
Installation and Set-Up Receiving and Handling Machine Set-Up Packaging and Separate Parts Tape Drum Bracket Machine Bed Height Tape Width Tape Leg Length Box Size Capacity of Case Sealer Drive Belt Height Electrical Connection and Controls Initial Start-Up of Case Sealer	11 - 14 11 11 - 14 11 - 12 13 13 13 13 14 14 14
Operation Operation "Warnings" Electrical On/Off Switch Emergency Stop Switch Tape Loading/Threading Box Size Set-Up Adjust Drive Belts Adjust Upper Taping Head Position Compression Rollers Run Boxes to Check Adjustment Box Sealing	15 - 19 16 16 16 16 17 - 18 17 17 18 18

Table of Contents (Continued)			
Maintenance	20 - 22		
Cleaning	20		
Lubrication	20		
Knife Replacement, Taping Head	20		
Circuit Breaker	21		
Drive Belts	21 - 22		
Replacement/Tension Adjustment	21 - 22		
Adjustments	23		
Drive Belt Tension			
Taping Head Adjustments	23		
Special Set-Up Procedure	25 - 30		
Changing Tape Leg Length	25		
Case Sealer Frame	25		
Taping Heads	25		
Drive Belt Assembly Height	26		
Disassemble	26		
Reassemble	26		
Box Height Range	27 - 30		
Troubleshooting	31		
Troubleshooting Guide	31		
Electrical Diagram	33		
Spare Parts/Tools	35		
Options/Accessories	36		
Replacement Parts Illustrations and Parts Lists	37 - 65		

Section II – AccuGlide $^{\text{TM}}$ II STD 3 Inch Taping Heads

Description

The **3M-Matic**™ 800a3 Adjustable Case Sealer with **AccuGlide**™ **II** Taping Heads is designed to apply a "C" clip of **Scotch**™ brand pressure-sensitive film box sealing tape to the top and bottom center seam of regular slotted containers. The case sealer is manually adjustable to a wide range of box sizes (see "Box Weight and Size Capacities", page 8).



3M-Matic[™] 800a3 Adjustable Case Sealer, Type 39600

Equipment Warranty and Limited Remedy: THE FOLLOWING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, A CUSTOM OR USAGE OF TRADE:

3M sells its 3M-Matic[™] 800a3 Adjustable Case Sealer, Type 39600 with the following warranties:

- 1. The Taping Head knife, springs and rollers will be free from all defects for ninety (90) days after delivery.
- 2. All other Taping Head parts will be free from all defects for three (3) years after delivery.
- 3. The gearmotor will be free from all defects for one (1) year after delivery.
- 4. All other parts will be free from all defects for ninety (90) days after delivery.

If any part is proved to be defective within its warranty period, then the exclusive remedy and 3M's and seller's sole obligation shall be, at 3M's option, to repair or replace the part, provided the defective part is returned immediately to 3M's factory or an authorized service station designated by 3M. A part will be presumed to have become defective after its warranty period unless the part is received or 3M is notified of the problem no later than five (5) calendar days after the warranty period. If 3M is unable to repair or replace the part within a reasonable time, then 3M, at its option, will replace the equipment or refund the purchase price. 3M shall have no obligation to provide or pay for the labor required to install the repaired or replacement part. 3M shall have no obligation to repair or replace (1) those parts failing due to operator misuse, carelessness, or due to any accidental cause other than equipment failure, or (2) parts failing due to non-lubrication, inadequate cleaning, improper operating environment, improper utilities or operator error.

Limitation of Liability: 3M and seller shall not be liable for direct, indirect, special, incidental or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability or any other legal theory.

The foregoing Equipment Warranty and Limited Remedy and Limitation of Liability may be changed only by a written agreement signed by authorized officers of 3M and seller.

800a3 Contents

- (1) 800a3 Adjustable Case Sealer, Type 39600
- (1) Tool Kit
- (1) Instruction Manual

Important Safeguards

This safety alert symbol identifies important messages in this manual. READ AND UNDERSTAND THEM BEFORE INSTALLING OR OPERATING THIS EQUIPMENT.

Important – In the event the following safety labels are damaged or destroyed, they must be replaced to ensure operator safety. For safety and information replacement labels, see Parts Illustrations/Lists, Section I, pages 64 and 65.

Two "Warning Sharp Knife" labels, shown in Figure 1-1, are attached to the sides of the upper frame at the location of the cut-off knife on the upper taping head. The labels warn operators and service personnel of the very sharp knife used to cut the tape at the end of the tape application.



Figure 1-1 - Knife Warning Label

The "Warning – Hazardous Voltage" label, shown in Figure 1-2, is attached to the cover of the electrical box. The label warns service personnel to unplug the power supply before attempting any service work on the case sealer.



Figure 1-2 - Electrical Warning Label

The two "Warning – Keep Away From Moving Belts" labels, shown in Figure 1-3, are located on the side of the drive belt assemblies at the infeed end. The labels warn operators and service personnel to keep hands away from this area when the drive belts are running.



Figure 1-3 – Hands Warning Label

Important Safeguards (Continued)

The "Caution – Pinch Point" label, shown in Figure 1-4, is attached to the top of the compression roller brackets on both sides of the machine. The label reminds operator to keep hands away from compression rollers when machine is running.

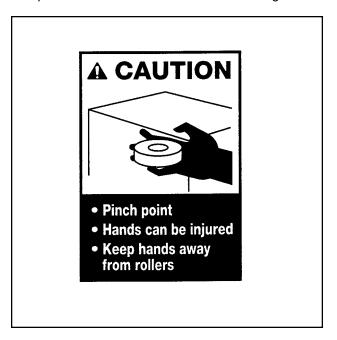


Figure 1-4 – Pinch Point Caution Label

The **"Stop"** and **"Off/On"** labels, are attached next to the switches as shown in **Figure 1-5**. These labels remind operators and casual personnel of the function of these switches.

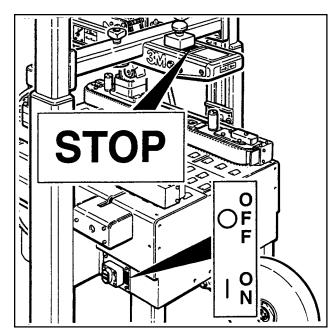


Figure 1-5 - Stop and Off/On Labels

The "Safety Instructions" label, shown in Figure 1-6, is attached to the top, front of the upper assembly. The label provides convenient safeguard instructions for the operator and service personnel.

SAFETY INSTRUCTIONS

- 1. Shut off machine before adjusting
- 2. Unplug electric power before servicing
- 3. Do not leave machine running unattended
- 4. Refer to instruction manual for complete setup, operating, and servicing information

Figure 1-6 – Safety Instructions Label

The "Operating Notice" label, shown in Figure 1-7, is located on top of both drive belt assemblies to remind operators of belt adjustment procedures.

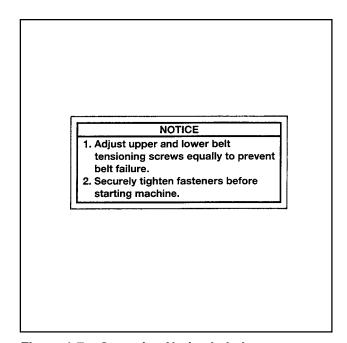


Figure 1-7 – Operating Notice Label

Important Safeguards (Continued)

The "Up/Down/Lock" and "Out/In" labels, shown in Figure 1-8, are attached next to the crank handles that raise and lower the upper assembly (taping head) and move the belts in and out to match box width.

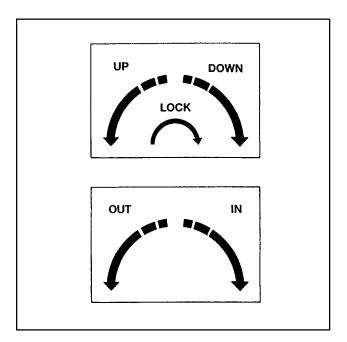


Figure 1-8 – Operating Labels

The following two labels are located on the upper and lower taping heads. Replacement part numbers for these two labels are listed in Section II.

The "Warning-Sharp Knife" label warns operators and service personnel of the extremely sharp knife used to cut the tape at the end of the box sealing operation. The label, shown in Figure 1-9, is located on the orange knife guard between the applying roller assembly and the buffing roller assembly. Never operate taping heads with knife guard removed.

Before working with the taping heads or loading/ threading tape, refer to Figures 3-1 and 3-2, in Section II, to identify the knife location. **Keep hands out of these areas except as necessary to service the taping heads or to load/thread tape.**



Figure 1-9 - Knife Warning Label

The "Tape Threading Label", shown in Figure 1-10, is attached to the left side of both upper and lower taping heads. This label provides a convenient tape threading diagram. More detailed tape loading and threading information is provided in this manual in the set-up procedure section.

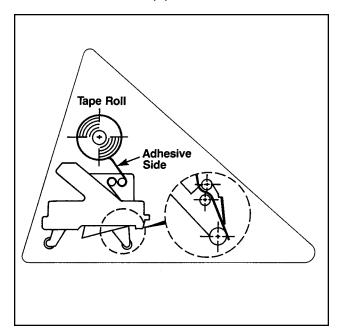


Figure 1-10 - Tape Threading Label

THIS PAGE IS BLANK

Specifications

Power Requirements:

Electrical - 115 VAC, 60 Hz, 3.8 A

These machines are equipped with an 2.4 m [8 foot] standard neoprene covered power cord and a grounded plug.

Contact your 3M Representative for power requirements not listed above.

2. Operating Rate:

Belt speed is 0.40 m/s [78 ft/min]

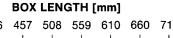
5. Tape Width:

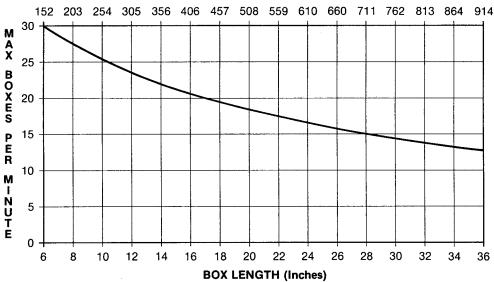
Minimum - 48 mm [2 inches] Maximum - 72 mm [3 inches]

6. Tape Roll Diameter:

Up to 405 mm [16 inches] maximum on a 76.2 mm [3 inches] diameter core. (Accommodates all system roll lengths of Scotch[™] brand film tapes.)

BOXES PER MINUTE VS. BOX LENGTH





Actual production rate is dependent on operator's dexterity. Boxes must be 18 inches [455mm] apart minimum.

3. Operating Conditions:

Use in dry, relatively clean environments at 5° to 40° C [40° to 105° F] with clean, dry boxes.

Important - Machine should not be washed down or subjected to conditions causing moisture condensation on components.

4. **Tape:**

Scotch™ brand pressure-sensitive film box sealing tapes.

7. Tape Leg Length (Standard):

70 mm \pm 6 mm [2-3/4 inches \pm 1/4 inch]

Tape Leg Length (Optional):

48 mm \pm 6 mm [2 inches \pm 1/4 inch] (To change tape leg length to 48 mm [2 inches], see "Special Set-Up Procedures", page 25.)

8. **Box Board:**

Style - regular slotted containers - RSC Bursting test -125 to 275 P.S.I. single wall or double wall B or C flute.

(Specifications continued on next page)

Specifications (Continued)

9. Box Weight and Size Capacities:

Weight

Maximum – up to 38.6 kg [85 pounds] Minimum – contents must support top flaps and weight must be sufficient to hold bottom flaps fully closed.

Box Size

MINIMUM

Length – 150 mm [6 inches] Width – 140 mm [5-1/2 inches] Height – 120 mm [4-3/4 inches] *

MAXIMUM

Length - unlimited

Width – 545 mm [21-1/2 inches] Height – 620 mm [24-1/2 inches]** **Note:** The case sealer is designed to accommodate most boxes complying with the 1976 FBA and PMMI*** voluntary standard "Tolerances for Top Opening" regular slotted corrugated containers (RSC). Two of the requirements of the standard are the following:

The box length is not more than twice the box width.

The box length is not more than four times the box depth.

DETERMINE THE BOX LIMITATIONS BY COMPLETING THIS FORMULA:

Box Length In

<u>Direction Of Seal</u>

Box Height

Must Be Greater Than .6

If any of the above criteria are not met boxes should be test run to assure proper machine performance.

* Minimum box height can be reduced to 110 mm [4-1/4 inches] by removing machine compression rollers.

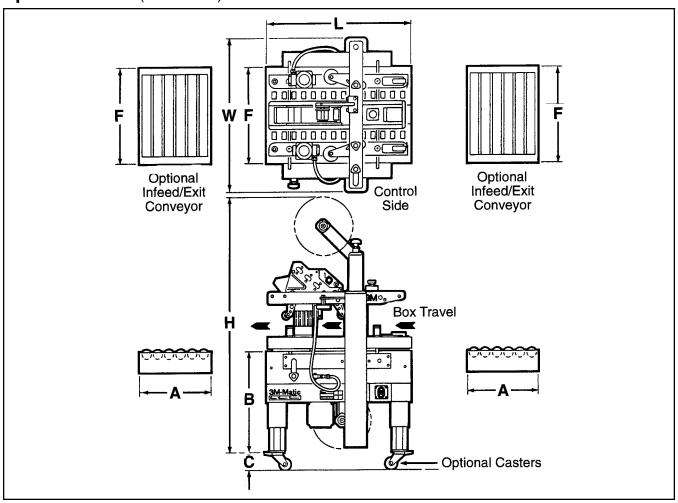
OR

Minimum box height can be reduced to 90 mm [3 1/2 inches] by adjusting taping heads to apply 48 mm [2 inch] tape legs. (See "Special Set-Up Procedure", page 25.) Also, compression rollers must be removed.

- ** Maximum box height can be increased to 725 mm [28-1/2 inches] by relocating machine outer columns to upper position. (See "Special Set-Up Procedure", page 27.)

 Note: Raising columns to upper position also increases minimum box height to 210 mm [8-1/4 inches].
- *** Fibre Box Association, Packaging Machinery Manufacturer's Association

Specifications (Continued)



Machine Dimensions

	W	L	Н	Α	В	С	F
Minimum mm [Inches] Maximum	980 [38-1/2]	920 [36-1/4]	1395 [55]	460 [18]	610 [24] *	105 [4-3/16]	620 [24-1/2]
mm [Inches]			2185 [86] *		890 [35] *		

^{*} With outer columns relocated to upper position, "H" maximum dimension increases 100 mm [4 inches] and "B" minimum dimension decreases by 90 mm [3-1/2 inches]. (See "Special Set-Up Procedure", page 27.)

Weight – approximate 176.9 kg [390 pounds] crated approximate 158.8 kg [350 pounds] uncrated

- 11. Set-Up Recommendations:
- > Machine must be level.
- > Customer supplied infeed and exit conveyors (if used) should provide straight and level box entry and exit.
- > Exit conveyors (powered or gravity) must convey sealed boxes away from machine.

THIS PAGE IS BLANK

Installation and Set-Up

Receiving And Handling

After the machine has been uncrated, examine the case sealer for damage that might have occurred during transit. If damage is evident, file a damage claim immediately with the transportation company and also your 3M Representative.

Machine Set-Up

The following instructions are presented in **the order recommended** for setting up and installing the case sealer. Following them step by step will result in an installation in your production line that best utilizes the many features built into the case sealer. Refer to Figure 3-1 to identify the various components of the machine.

Note – A tool kit consisting of metric open end and hex socket wrenches is provided with the machine. These tools should be adequate to set-up the machine, however, other tools supplied by the customer will be required for machine maintenance.

Important – Read "Warnings" on page 16 before attempting to set-up the case sealer for operation.

PACKAGING AND SEPARATE PARTS

- 1. Lift fiberboard cover off pallet after removing staples at bottom.
- 2. Remove protective wrapping around machine.
- 3. Remove hardware that secures case sealer legs to pallet.
- Cut and remove cable tie that secures black electrical conduit to the electrical mast on top of machine.

- Cut cable ties that secure upper assembly to machine bed on each side of machine.
- 6. Install height adjustment crank handle on top of left column as shown in Figure 2-1A.
- 7. Crank upper assembly up high enough to allow clear access to lower taping head. Remove and discard the two cushion shipping blocks.
- 8. Spread side drive belts to full open position with crank on side of machine frame.
- Remove tape drum bracket bolts (4) from top crossbar and install tape drum bracket from parts box on top crossbar as shown in Figure 2-1B.
- Cut and remove cable ties on both upper and lower taping heads. (Applying/buffing rollers are held retracted for shipment.)

WARNING – Follow this step carefully as spring pressure is applied to applying and buffing arms when cable tie is removed. Keep hands/fingers AWAY from tape cut-off knife under orange knife guard. Knife is extremely sharp and can cause severe injury.

Hold taping head BUFFING ROLLER and cut and remove cable tie that holds applying/buffing arms retracted. See Figure 2-1C. Allow buffing/applying arms to extend slowly.

11. Cut and remove tie straps that hold lower taping head in place.

Installation and Set-Up (Continued)

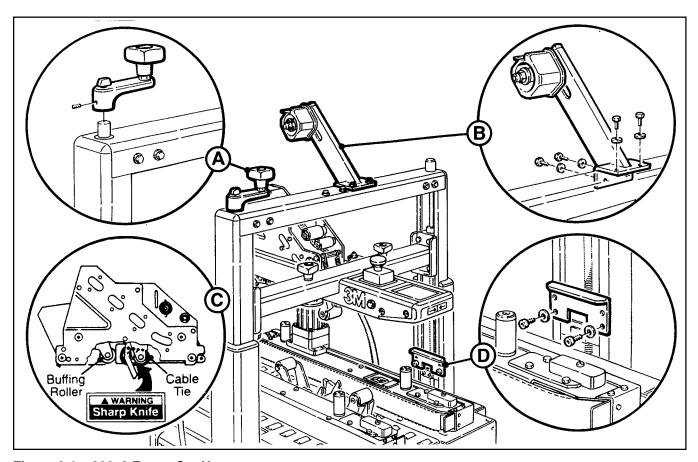


Figure 2-1 – 800a3 Frame Set-Up

12. Check for free action of both upper and lower taping heads.

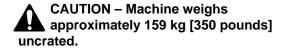
WARNING – Keep hands/fingers away from tape cut-off knife under orange knife guard. Knife is extremely sharp and can cause severe injury.

Push buffing roller into head to check for free, smooth action of taping heads.

13. Install machine stops (from parts box) as shown in Figure 2-1D. Use the lowest hole position and bolt into the lowest threaded insert on the column. (The upper hole position in the stops are only used when the taping heads are adjusted to apply 50 mm [2 inch] tape legs.)

- 14. Ensure that the tape drum bracket assembly, located on the lower taping head, is mounted straight down, as shown in Figure 2-2A. The tape drum bracket assembly can be pivoted to provide tape roll clearance in certain cases.
- 15. Use appropriate material handling equipment to remove the machine from the pallet and move it into position.

Whenever the machine is lifted with a fork truck, insure that the forks span completely across the machine frame and do not contact any wiring or mechanism under the machine frame. In some cases the lower taping head may need to be removed to avoid damage.



16. Continue with the remainder of the Installation and Set-Up procedure through page 14.

Installation and Set-Up (Continued)

TAPE DRUM BRACKET (Lower Taping Head)

Outboard tape roll mounting (Alternate Position) – Remove the tape drum bracket assembly, stud spacer and fasteners from the taping head. Install and secure on the infeed end of the lower frame, as shown in Figure 2-2B.

MACHINE BED HEIGHT

Adjust machine bed height. The case sealer is equipped with four adjustable legs that are located at the corners of the machine frame. The legs can be adjusted to obtain different machine bed heights from 610 mm [24 inches] minimum to 890 mm [35 inches] maximum.

Refer to Figure 2-2C and set the machine bed height as follows:

- 1. Raise and block up the machine frame to allow adequate leg adjustment.
- Loosen, but do not remove, two M8 x 16 socket head screws in one leg (use M6 hex wrench). Adjust the leg length for the desired machine bed height. Retighten the two screws to secure the leg. Adjust all four legs equally.

TAPE WIDTH

The taping heads on the 800a3 have been preset to accommodate 72 mm [3 inch] wide tape rolls. To adjust heads for narrower tape, refer to Section II, "Adjustments – Tape Web Alignment", page 11.

TAPE LEG LENGTH

Taping heads are pre-set to apply 70 mm [2-3/4 inch] long tape legs. To change tape legs to 48 mm [2 inch], see "Special Set-Up Procedure – Changing Tape Leg Length", page 25.

BOX SIZE CAPACITY OF CASE SEALER

At its factory setting, the case sealer handles box sizes up to 620 mm [24-1/2 inches] maximum height. If larger capacity is needed, the machine can be adjusted to accommodate boxes up to 725 mm [28-1/2 inches] high. Refer to page 27, "Special Set-Up Procedures – Box Height Range", for set-up procedure.

Note – Adjusting machine to accommodate 724 mm [28-1/2 inches] high boxes also increases minimum box size to 210 mm [8-1/4 inches].

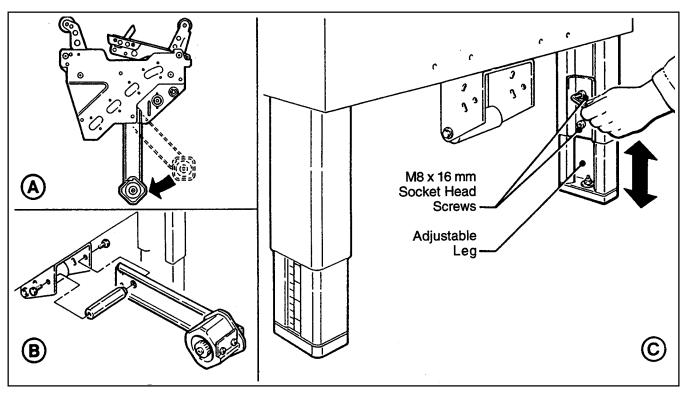


Figure 2-2 – Machine Bed Height Adjustment and Lower Tape Drum Bracket Position

Installation and Set-Up (Continued)

DRIVE BELT HEIGHT

The drive belt assemblies can be raised 50 mm [2 inches] to provide better conveying of tall boxes. Refer to page 26, "Special Set-Up Procedures – Drive Belt Assembly Height", for set-up procedure. Note – Raising drive belts increases the minimum box height that can be taped to 190 mm [7-1/4 inches].

ELECTRICAL CONNECTION AND CONTROLS

The electrical control box, shown in Figure 3-1, contains the "On/Off" switch with pre-set circuit breaker and can be located on either side of the machine frame for customer operating convenience. A standard three conductor power cord with plug is provided at the back of the electrical control box for 115 Volt, 60 Hz, 3.8 Amp electrical service. The receptacle providing this service shall be properly grounded. Before the power cord is plugged into 115 Volt, 60 Hz outlet, make sure that all packaging materials and tools are removed from the machine. Do not plug electrical cord into outlet until ready to run machine.

Use of an extension cord is not recommended. However, if one is needed for temporary use, it must have a wire size of AWG 16 [1.5 mm dia], have a maximum length of 30.5 m [100 ft], and must be properly grounded.

WARNING – To prevent shock and fire hazard: Position extension cord where it will be out of the way of foot or vehicle traffic. Extension cord is only for temporary use – do not use for a permanent installation.

Note – Machines outside the U.S. may be equipped with 220/240 Volt, 50 Hz systems, or other electrical requirements compatible with local practice.

INITIAL START-UP OF CASE SEALER

After completing the "Installation and Set-Up" procedure, continue through "Operation" for tape loading and start-up to be sure case sealer is properly adjusted to run boxes.

Operation

IMPORTANT – Before operating the case sealer read all the "Important Safeguards", pages 3-5 and "Warnings", on page 16 as well as all of the "Operation" instructions.

Refer to Figure 3-1 to acquaint yourself with the various components of the case sealer and also see Section II, page 6, for taping head components.

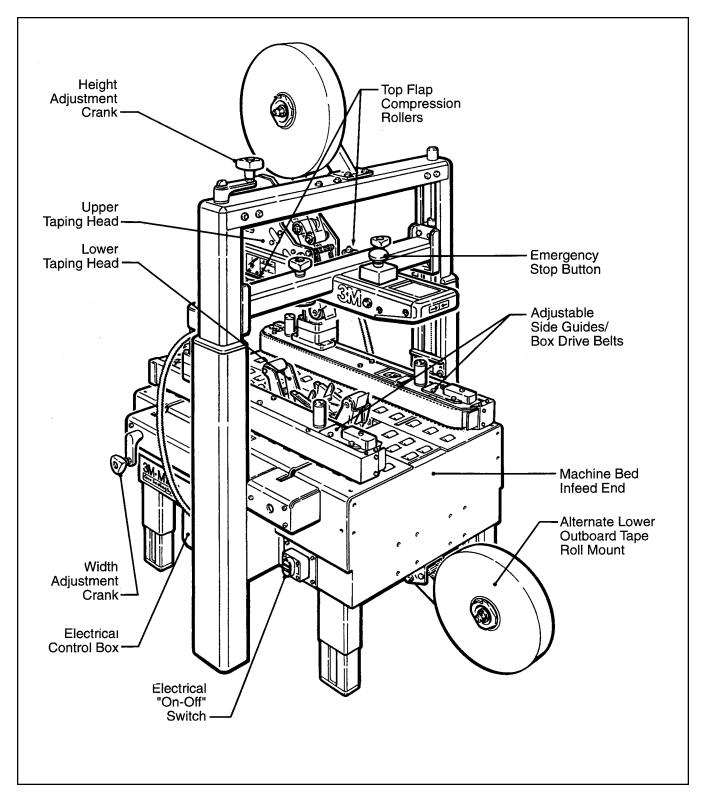


Figure 3-1 - Case Sealer Components, Left Front View



WARNINGS

- 1. Turn electrical supply off and disconnect before servicing taping heads or performing any adjustments or maintenance on the machine.
- 2. Turn electrical supply off when machine is not in use.
- 3. Before turning drive belts on, be sure no tools or other objects are on the machine bed.
- 4. Keep hands and loose clothing away from moving belts.
- 5. Never attempt to work on any part of the machine, load tape or remove jammed boxes from the machine while machine is running.
- 6. When feeding boxes to the machine by hand, push box in from end only DO NOT PUSH WITH HANDS ON ANY CORNER OF THE BOX.
- 7. Taping heads utilize an extremely sharp cut-off knife. The knife is located under the orange knife guard that has the 'WARNING SHARP KNIFE" label. Before loading tape, refer to Section II, page 6, Figures 3-1 and 3-2 to identify the knife location. Keep hands out of these areas except as necessary to service the taping heads.
- 8. Failure to comply with these warnings could result in severe personal injury and/or equipment damage.

Electrical "On/Off" Switch

The box drive belts are turned on and off ("Off" button is red) with the electrical switch on the side of the machine frame.

Note – The case sealer has a circuit breaker located in the electrical enclosure on the lower left side of the machine frame. If circuit becomes overloaded and circuit breaker trips, see "Maintenance – Circuit Breaker", page 21.

Emergency Stop Switch

The machine electrical supply can be turned off by pressing the latching emergency stop switch. To restart machine, rotate emergency stop switch (releases switch latch) and then restart machine by pressing green (On) button on side of machine frame.

Tape Loading/Threading

See Section II, Pages 7 and 8

Note – If lower tape drum is mounted in alternate lower outboard position, remove taping head from machine bed by pulling straight up, insert threading needle in taping head and replace taping head. Install tape roll on drum (adhesive on tape leg up), thread tape under knurled roller on outboard mount, then attach tape to threading needle and pull tape through taping head with threading needle.

CAUTION – Taping head weighs approximately 7.2 kg [16 pounds] without tape. Use proper body mechanics when removing or installing taping head.

Box Size Set-Up

1. ADJUST DRIVE BELTS (Figure 3-2)

Place a product filled box on infeed end of machine bed with top flaps folded as shown and manually move box forward to contact lower taping head applying roller.

Turn drive belt adjustment crank to position both side drive belts against sides of box.

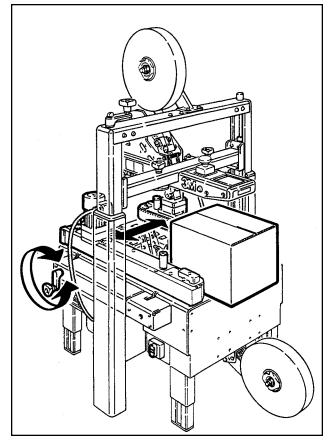


Figure 3-2 - Side Drive Belts

2. ADJUST UPPER TAPING HEAD (Figure 3-3)

Turn height adjustment crank to position upper taping head onto box. Turn clockwise to lower head, counterclockwise to raise head. Upper taping head must contact and hold top box flaps closed.

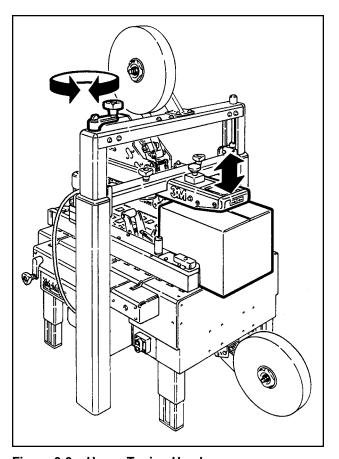


Figure 3-3 – Upper Taping Head

3. POSITION COMPRESSION ROLLERS (Figure 3-4)

The top flap compression rollers have an adjustable slide mounting to provide side compression through the full range of box widths.

Manually move box forward so front of box is aligned with top flap compression rollers.

Adjust the compression rollers against top edge of box and **tighten knobs to secure rollers** in operating position.

CAUTION – Hands can be injured or caught between compression rollers and box. Keep hands away from this area when machine is running.

4. RUN BOXES TO CHECK ADJUSTMENT (Figure 3-5)

CAUTION – Be sure all packaging materials and tools are removed from the machine before operating.

Push electrical switch "On" to start drive belts.

Move box forward under upper taping head until it is taken away by drive belts. If box is hard to move under head or is crushed, raise head slightly.

If the box movement is jerky or stops under the upper head, move the side drive belts in slightly to add more pressure between the box and drive belts.

Note – If drive belts are allowed to slip on box, excessive belt wear will occur.

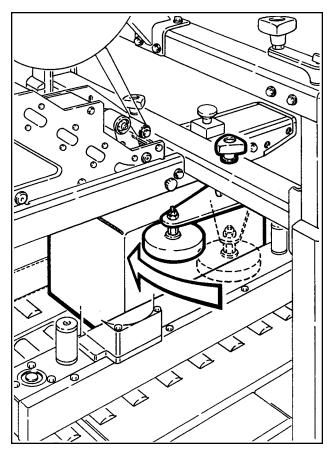


Figure 3-4 – Top Flap Compression Rollers

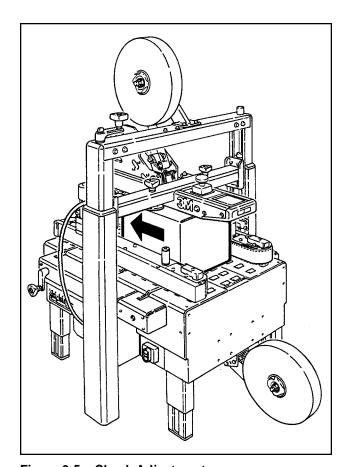


Figure 3-5 – Check Adjustment

Box Sealing

- 1. Feed boxes to machine at minimum 455 mm [18 inch] intervals.
- 2. Turn electrical supply "Off" when machine is not in use.
- 3. Reload and thread tape as necessary.
- 4. Be sure machine is cleaned and lubricated according to recommendations in "Maintenance" section of this manual.

Notes

- Machine or taping head adjustments are described in "Adjustments", Section I for machine or Section II for taping heads.
- Box drive motors are designed to run at a moderate temperature of 40°C [104°F]. In some cases, they may feel hot to the touch.

Maintenance

The case sealer has been designed for long, trouble-free service. The machine will perform best when it receives routine maintenance and cleaning. Machine components that fail or wear excessively should be promptly repaired or replaced to prevent damage to other portions of the machine or to the product.

WARNING – Turn off electrical power supply and disconnect power cord from electrical supply before beginning maintenance. If electrical power is not disconnected, severe injury to personnel could result.

Cleaning

Note – Never attempt to remove dirt from taping heads by blowing it out with compressed air. This can cause the dirt to be blown inside the motor and onto sliding surfaces which may cause premature equipment wear. Never wash down or subject equipment to conditions causing moisture condensation on components. Serious equipment damage could result.

Regular slotted containers produce a great deal of dust and paper chips when processed or handled in equipment. If this dust is allowed to build-up on machine components, it can cause component wear and overheating of drive motor. The dust build-up can best be removed from the machine by a shop vacuum. Depending on the number and type of boxes sealed in the case sealer, this cleaning should be done approximately once per month. If the boxes sealed are dirty, or if the environment in which the machine operates is dusty, cleaning on a more frequent basis may be necessary. Excessive dirt build-up that cannot be removed by vacuuming should be wiped off with a damp cloth.

Lubrication

Like most other equipment, the case sealer must be properly lubricated to insure long, trouble free service. Most of the machine bearings are permanently lubricated and sealed and do not need to be greased. The drive motor is also permanently lubricated and does not require additional lubrication.

Figure 4-1 illustrates the frame points which should be lubricated every 250 hours of operation. Lubricate the rotating and pivoting points, noted by the arrows, () with SAE #30 non-detergent oil. Lubricate the points noted by () with a small amount of multi-purpose grease.

Note – Wipe off excess oil and grease. It will attract dust which can cause premature equipment wear and jamming. Take care that oil and grease are not left on the surface of rollers around which tape is threaded, as it can contaminate the tape's adhesive.

Taping Head Lubrication – See Section II, "Maintenance – Lubrication", page 10.

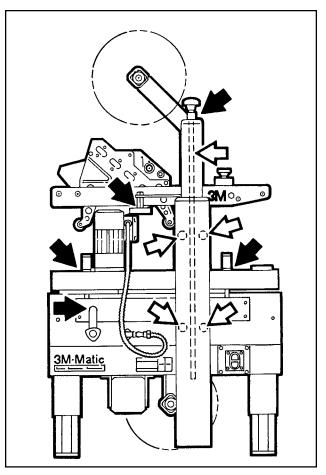


Figure 4-1 – Frame Lubrication Points

Knife Replacement, Taping Head

See Section II, "Maintenance – Blade (Knife) Replacement", page 9.

WARNING – Turn off electrical power and disconnect power cord from electrical supply before beginning maintenance. If power cord is not disconnected, severe injury to personnel could result.

Circuit Breaker

The case sealer is equipped with a circuit breaker which trips if the motors are overloaded. Located inside the electrical enclosure on the side of the machine frame just below the machine bed, the circuit breaker has been pre-set at 2.2 amps and requires no further maintenance.

WARNING – The following procedure must be performed by trained service personnel because of the high voltage electrical hazard within the control box.

If circuit is overloaded and circuit breaker trips, unplug machine from electrical power:

- 1. Determine cause of overload and correct.
- 2. Remove electrical enclosure cover.
- 3. Press the red "Reset" button and then the green "Start" button.
- 4. Replace cover.
- 5. Plug in machine.
- 6. Press machine "On" button to resume case sealing.

Drive Belts

Note – 3M recommends the replacement of drive belts in pairs, especially if belts are unevenly worn.

REPLACEMENT – SEE STEPS 1 THRU 8 TENSION ADJUSTMENT – SEE STEPS 3, 7 AND 8

- Crank the upper taping head to its fully raised position.
- 2. Remove and retain the three screws (A), three washers (B) and side cover (C). See Figure 4-2.
- 3. Remove and retain the screw (D), washer (E) and belt tensioner cover (F).
- Turn belt adjustment screws (G)
 counterclockwise on both the upper and lower
 tension assemblies until belt is loose. See
 Figure 4-3.
- Locate the belt lacing (joint) by turning the belt manually. Remove the pin with pliers. Remove and discard old belt.

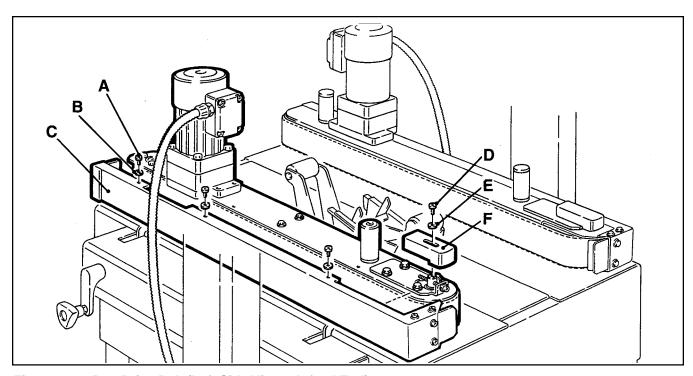


Figure 4-2 - Box Drive Belt (Left Side View - Infeed End)

Maintenance (Continued)

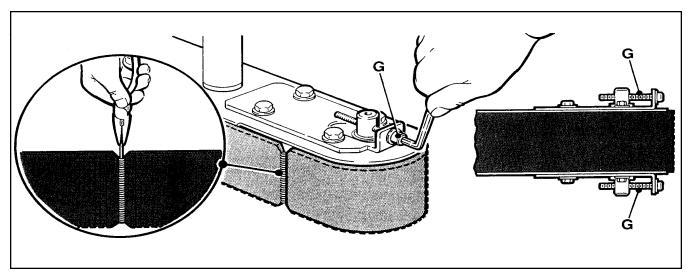


Figure 4-3 - Box Drive Assembly, Infeed End

Install the new belt around drive rollers and insert new pin. Pin must not extend beyond edge of belt.

Important – Before installing new drive belt, check the belt inside surface for drive direction arrows and install belt accordingly. If no arrows are shown, the belt may be installed either way.

 To set drive belt tension, turn adjustment screws (G) equally on both the upper and lower tension assemblies. Turn the screws clockwise to increase tension or counterclockwise to decrease tension. See Figure 4-3.

Use a force gauge to pull the belt outward 25 mm [1 inch] at midspan, as shown with a moderate pulling force of 3.5 kg [7 lbs].

Reverse procedures in Steps 1-3 (Figure 4-2) to reassemble the drive belt assembly.

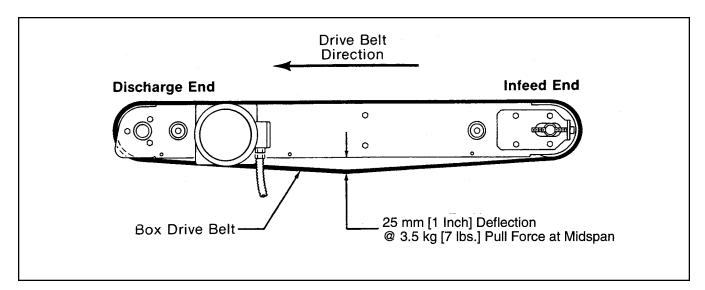


Figure 4-4 - Box Drive Belt Tension Adjustment, Top View

Adjustments

WARNING - Turn off electrical power supply and disconnect power cord from electrical supply before beginning adjustments. If power cord is not disconnected, severe injury to personnel could result.

Drive Belt Tension

Tension adjustment of the drive belts may be required during normal operation. Belt tension must be adequate to positively move the box through the machine and they should run fully on the surface of the pulleys at each end of the frame. The idler pulleys on the infeed end are adjusted in or out to provide proper belt tension. Each belt is adjusted separately.

Belt tension is obtained by tightening the adjustment screw so that a moderate pulling force of 3.5 kg [7 lbs] applied at the midspan, as shown in Figure 4-4, will deflect the belt 25 mm [1 inch]. This will assure positive contact between the belt and the drive pulley on the discharge end of the taping head.

To adjust belts, see "Maintenance – Drive Belts", page 21, steps 3 and 7.

Taping Head Adjustments



WARNING – Use care when working near tape cut-off knives on taping heads as knives are extremely sharp. If care is not taken, severe injury to personnel could result.

TAPE WEB ALIGNMENT - Section II, page 11

TAPE DRUM FRICTION BRAKE – Section II, page 11

APPLYING MECHANISM SPRING – Section II, page 11

ONE-WAY TENSION ROLLER – Section II, page 12

TAPE LEG LENGTH

Leading Tape Leg Length Adjustment – Section II, page 13

Changing Tape Leg Length from 70 to 48 mm [2-3/4 to 2 inches] – Section II, page 13.

Note – Changing tape leg to 48 mm [2 inches] requires machine adjustment also. See Section I, "Special Set-Up Procedure – Changing Tape Leg Length", page 25.

THIS PAGE IS BLANK

Special Set-Up Procedure

WARNING – Turn off electrical power and disconnect power cord from electrical supply before beginning special set-up procedure. If power cord is not disconnected, severe injury to personnel could result.

Changing Tape Leg Length

(From 70 to 48 mm [2-3/4 to 2 Inches])

The following changes to the case sealer will allow taping boxes 90 mm [3-1/2 inches] minimum height.

CASE SEALER FRAME (Refer to Figure 5-1A)

- Raise the upper head assembly (by turning crank handle counterclockwise). Remove and retain the two screws and washers from the normal position holes "A-A".
- Remount and secure the stop bracket in the lower position "A" using the top holes and original fasteners. Relocate both the right and left stop brackets.

TAPING HEADS



WARNINGS

- Use care when working near tape cut-off knife as knife is extremely sharp. If care is not taken, severe injury to personnel could result.
- 2. Taping head weighs approximately 7.2 kg [16 lbs]. Use proper body mechanics when lifting upper or lower taping heads.

(Refer to Figures 5-1B and 5-1C)

- Loosen, but do not remove, the two retaining screws that secure the upper taping head shown in Figure 5-1B.
- 2. Slide the head forward and lift straight up to remove it from the case sealer.
- 3. Lift the lower taping head, shown in Figure 5-1C, straight up to remove it from the case sealer bed.
- Refer to Section II, Adjustments Changing Tape Leg Length", page 13 for taping head set-up.

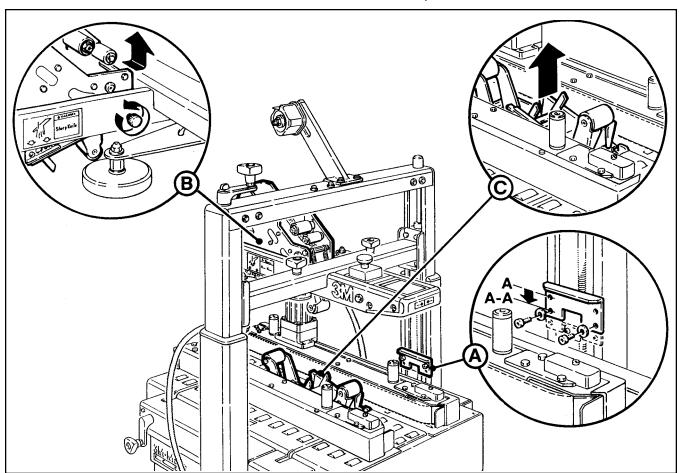


Figure 5-1 – Removing Taping Heads From Case Sealer

WARNING – Turn off electrical power and disconnect power cord from electrical supply before beginning special set-up procedure, if power cord is not disconnected, severe injury to personnel could result.

Drive Belt Assembly Height

The drive belt assemblies can be raised 48 mm [2 inches] to provide better conveying of tall boxes. This change increases the minimum box height that can be taped to 190 mm [7-1/4 inches].

DISASSEMBLE - Figure 5-2

- It is first necessary to raise the top taping head.
 Utilize the height adjustment crank and move the upper taping head to the fully raised position.
- Remove and retain the screw (A), cap washer
 (B) and spacer (C) from the front and rear arm assembly pivots.
- 3. Lift belt drive assembly (D) up off the arm assembly pivots.

REASSEMBLE – Figure 5-3

- 4. Reassemble the spacer (C) onto the front and rear arm assembly pivots.
- Install the belt drive assembly (D) onto the pivots and secure with the cap washers (B) and screws (A).

Note – Both drive belt assemblies must be installed at the same operating height.

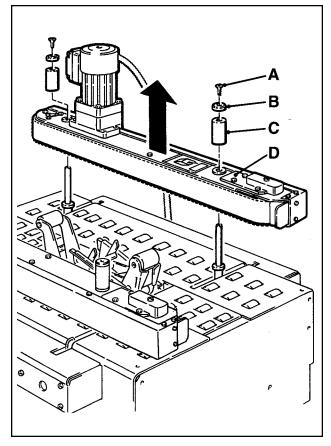


Figure 5-2 - Drive Belt Assembly, Disassembly

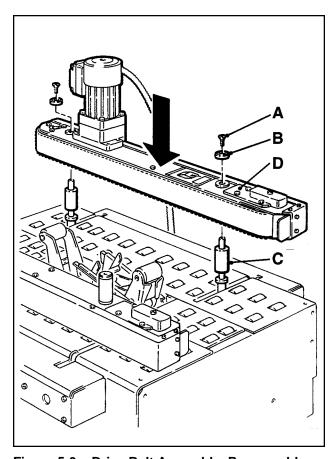


Figure 5-3 – Drive Belt Assembly, Reassembly

WARNING – Turn off electrical power and disconnect power cord from electrical supply before beginning special set-up procedure, if power cord is not disconnected, severe injury to personnel could result.

Box Height Range (Outer Column – Re-Positioning)

WARNING – It is recommended that no less than two people assist on this setup or severe injury or equipment damage could result.

Moving the outer columns to the upper set of mounting holes increases the maximum box size (height) handled by the case sealer from 620 mm [24-1/2 inches] to 725 mm [28-1/2 inches]. Note – this also increases the minimum box height from 120 mm [4-3/4 inches] to 210 mm [8-1/4 inches].

To Re-position the outer columns:

- 1. Remove special nut from the bottom of each column lead screw. Figure 5-4A.
- 2. Remove plastic column cap from the top of each outer column as shown in Figure 5-4B.
- Crank upper assembly up, out of plastic nuts.
 Lift upper assembly up and out of outer columns. Be careful not to damage lead screws.
 Figure 5-4C.

WARNING – Upper assembly weight is approximately 35 kg [75 lbs]. Lift with hoist or be sure to have adequate help available to physically lift upper assembly up and out of outer columns.

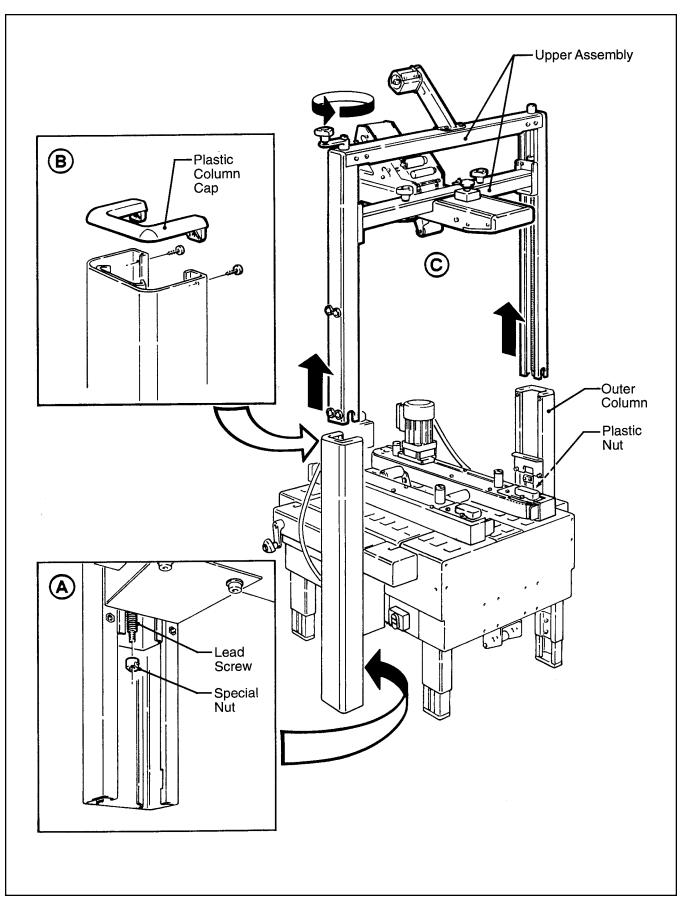


Figure 5-4 – Upper Frame Removal

- 4. Remove M6 x 16 hex hd screw, special washer and drive belt width adjustment crank. Figure 5-5.
- 5. Remove side covers (2) from each side of machine bed. Figure 5-5.
- Remove chain. If necessary, slip width adjustment crank on shaft and rotate until chain master link is in convenient position for removal.

M6 x 16
Hex Hd Screw

Washer

Crank

Side Covers

Figure 5-5 - Crank/Chain Guards

Important – Before removing chain, mark both front and rear sprockets/chain with chalk or paint to be sure sprockets/chain when re-assembled, will be in same position as before disassembly. Figure 5-6A and B. Do not rotate sprockets once chain is removed. (This would result in the right and left drive assemblies not being parallel.)

Remove chain master link and remove chain. Figure 5-6C.

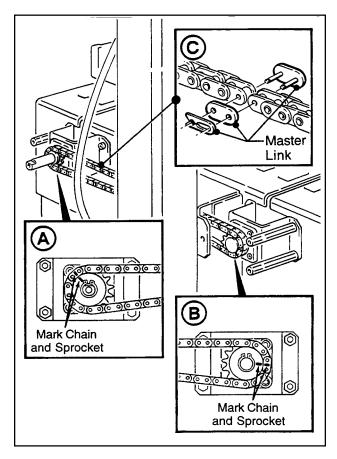


Figure 5-6 - Chain Removal

Special Set-Up Procedure (Continued)

- Remove fasteners (M8 x 16 socket head screws and M6 plain washers) that attach column spacers to machine bed and remove spacers/ outer columns from machine bed. Figure 5-7A.
- Remove fasteners (M8 x 20 socket head screws) that attach spacers to columns, move spacer down 100 mm [4 inches] to lower set of mounting holes and re-attach spacers to columns. Figure 5-7B.
- Reverse procedure, Steps 7-1 to reassemble machine

Note – When installing upper assembly back into machine (removed in Step 3), slide upper assembly down into outer columns until lead screws contact plastic nuts and support upper assembly. Then, slowly turn height adjustment crank counterclockwise until two "clicks" are heard, one at each plastic nut. Now the upper assembly can be cranked down (turn height adjustment crank clockwise) for installation of special nut on bottom of each lead screw.

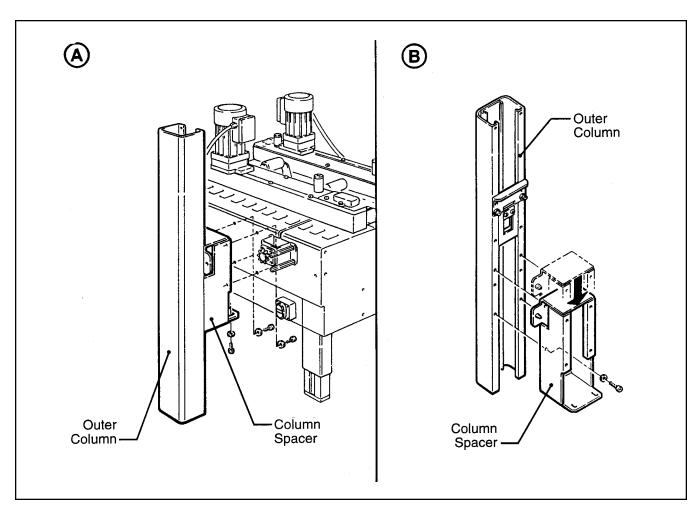


Figure 5-7 - Column Spacers/Columns

Troubleshooting

The Troubleshooting Guide lists some possible machine problems, causes and corrections. Also see Section II, "Troubleshooting", pages 15 and 16 for taping head problems.

Troubleshooting Guide

Problem	Cause	Correction
Drive belts do not convey boxes	Narrow boxes	Check machine specifications. Boxes are narrower than recommended, causing slippage and premature belt wear.
	Worn drive belts	Replace drive belts
	Top taping head does not apply enough pressure	Adjust the box height adjustment with the crank
	Top flap compression rollers in too tight	Readjust compression rollers
	Taping head applying spring holder missing	Replace spring holder
	Taping head applying spring set too high	Reduce spring pressure
Drive belts do not turn	Worn or missing friction rings	Replace friction rings
	Drive belt tension too low	Adjust belt tension
	Electrical disconnect	Check power and electrical plug
	Circuit breaker not at correct setting	Set to correct current value
	Motor not turning	Evaluate problem and correct
Upper and lower applying mechanisms interfere with each other	Machine adjusted below minimum	Set taping heads to apply 48 mm [2 inch] leg lengths
Drive belt break	Worn belt	Replace belt
	Excessive belt tension	Tension to 3.5 kg [7 lbs] per adjustment section
Squeaking noise as boxes pass	Dry column bearings	Lubricate column bearings
through machine	Defective column bearings	Replace column bearings
Tape not centered on box seam	Tape drum not centered	Reposition tape drum
	Box flaps not of equal length	Check box specifications

THIS PAGE IS BLANK

Electrical Diagram

WARNING – Turn off electrical power supply and disconnect power cord from electrical supply before beginning service. If power cord is not disconnected, personnel could be exposed to dangerous voltages. Severe injury or equipment damage could result.

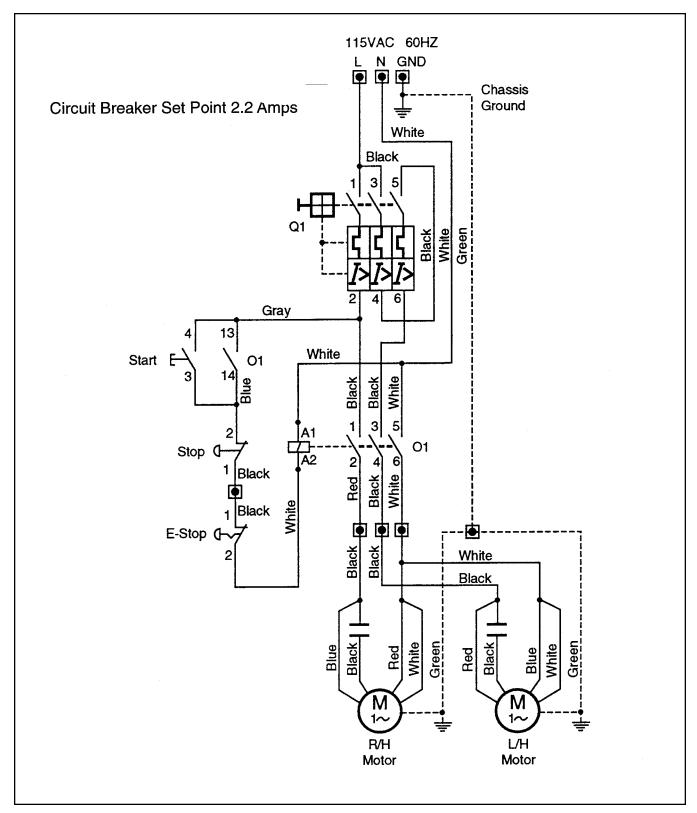


Figure 7 – Electrical Diagram

THIS PAGE IS BLANK

Spare Parts/Tools

Spare Parts

The following parts periodically require replacement due to normal wear. They should be ordered immediately and kept on hand to keep the case sealer in production.

800a3 Adjustable Case Sealer, Type 39600

Qty	Section/Ref. No.	Part Number	Description
2	II/2949-15	78-8057-6181-0	Roller – Applying
2	II/2950-5, 2955-5	78-8057-6180-2	Roller – Buffing
1	II/2950-10	78-8070-1274-1	* Spring – Upper Extension (Silver)
2	II/2952-2	78-8028-7899-7	* Knife – 3.5 Inch [89 mm]
4	II/2952-12	78-8052-6602-6	* Spring – Cutter
1	II/2955-10	78-8070-1273-3	* Spring – Lower Extension (Black)
2	I/4759-55	78-8076-5452-6	Belt – Drive, W/Hook
2	II/2952-6	78-8070-1390-5	Spring – Torsion

^{*} Note – These spare parts are supplied with the tool kit that comes with your machine and should also be ordered separately as used, to keep the case sealer in production.

Tool Kit

A tool kit, packaged separately and included with your machine, contains the necessary wrenches for use with the metric fasteners on the case sealer. The threading tool, part number 78-8076-4726-4, contained in the tool kit is available as a stock replacement item and can be ordered separately.

Label Kit

A label kit, part number 78-8113-6744-6 is available as a stock item and contains all the safety and information labels used on the case sealer or separate labels can be ordered from the parts list, page 65.

Options/Accessories

For additional information on the options/accessories listed below, contact your 3M Representative.

Part Number	Option/Accessory
78-8052-6553-1	Box Hold Down Attachment, Model 18500
78-8069-3983-7	Caster Kit Attachment
78-8069-3924-1	Conveyor Extension Attachment
78-8069-3926-6	Low Tape Sensor Kit
78-8079-5505-5	Three Flap Folder Kit
78-8079-5560-0	Tape Application Sensor Kit
78-8095-4852-8	3 Inch Tape Edge Fold Kit (Upper)
78-8095-4853-6	3 Inch Tape Edge Fold Kit (Lower)

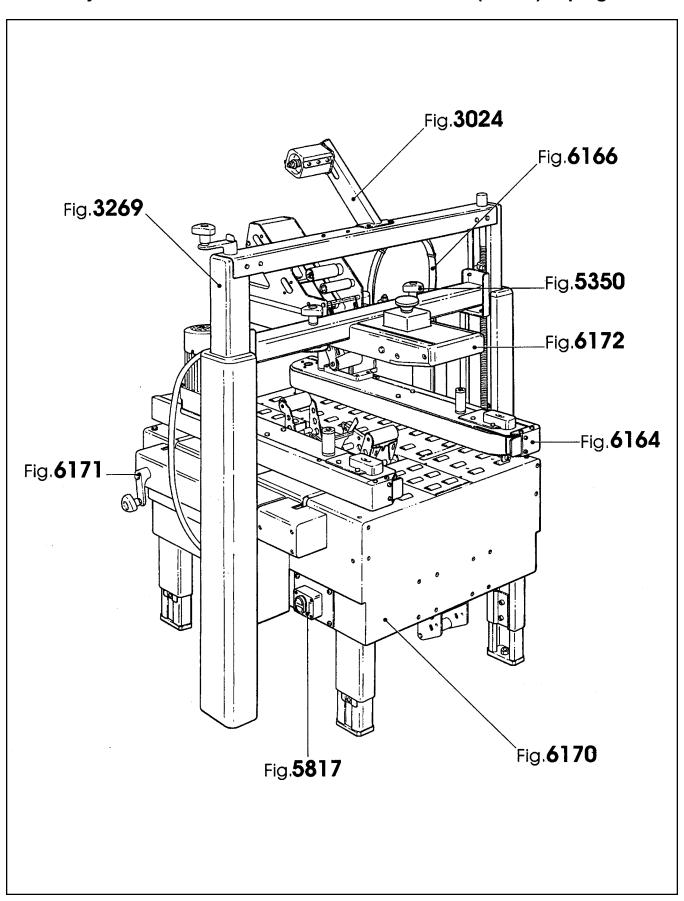
Replacement Parts Illustrations and Parts List

800a3 Adjustable Case Sealer, Type 39600 With AccuGlide™ II STD (2 Inch) Taping Heads

1.	Refer to first illustration, 800a3 Assembly , for the Figure Number that identifies a specific portion of the machine.
2.	Refer to the Figure or Figures to determine the individual parts required and the part reference number.
3.	The parts list that follows each illustration, includes the part number and part description for the parts in that illustration.
	Note – The complete description has been included for standard fasteners and some commercially available components. This has been done to allow obtaining these standard parts locally should the customer elect to do so.
4.	Refer to the first page of this instruction manual for replacement parts ordering information.
	IMPORTANT – Not all the parts listed are normally stocked items. Some parts or assemblies shown are available only on a special order basis. Contact 3M/Tape Dispenser Parts to confirm item availability.

THIS PAGE IS BLANK

800a3 Adjustable Case Sealer W/AccuGlide™ II STD (3 Inch) Taping Heads



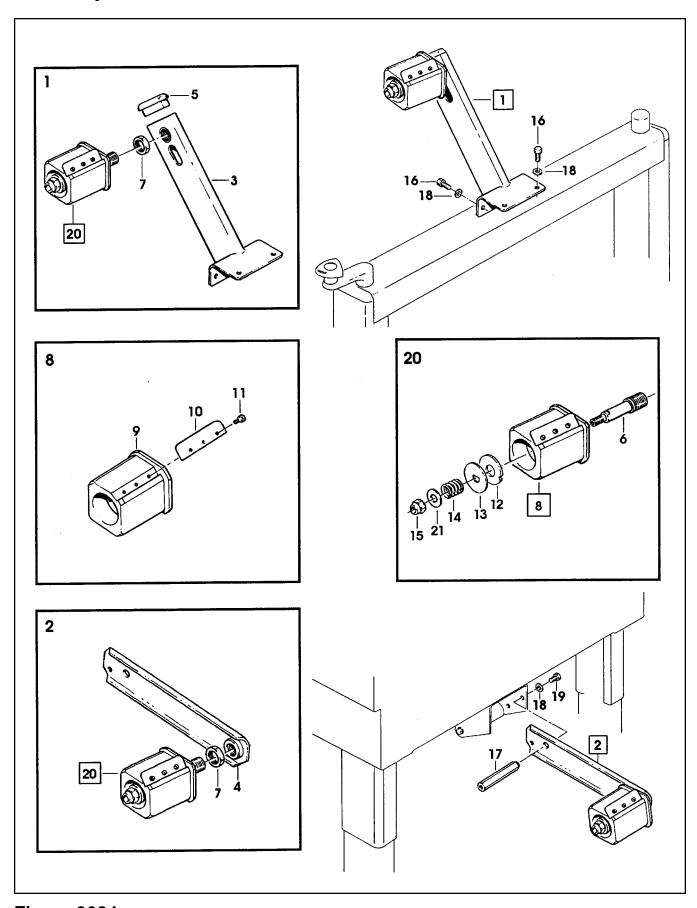


Figure 3024

40

Ref. No.	3M Part No.	Description
3024-1	78-8076-4934-4	Tape Drum Bracket Assembly
3024-2	78-8076-4935-1	Tape Drum Bracket Assembly
3024-3	78-8070-1566-0	Bracket – Tape Drum
3024-4	78-8070-1395-4	Bracket – Bushing Assembly
3024-5	78-8070-1568-6	Cap – Bracket
3024-6	78-8060-8462-6	Shaft – Tape Drum
3024-7	78-8017-9169-6	Nut – M18 x 1
3024-8	78-8076-4731-4	Tape Drum Assembly – 3 Inch Wide
3024-9	78-8054-8815-8	Tape Drum Assembly
3024-10	78-8054-8816-6	Leaf Spring
3024-11	26-1002-5753-9	Screw - Self-Tapping
3024-12	78-8060-8172-1	Washer – Friction
3024-13	78-8052-6271-0	Washer – Tape Drum
3024-14	78-8100-1048-4	Spring – Core Holder
3024-15	78-8017-9077-1	Nut - Self-Locking, M10 x 1
3024-16	78-8032-0375-7	Screw - Hex Hd, M6 x 16
3024-17	78-8076-4742-1	Spacer - Tape Drum Bracket
3024-18	26-1000-0010-3	Washer – Flat M6
3024-19	78-8010-7169-3	Screw – Hex Hd, M6 x 12
3024-20	78-8076-4732-2	Tape Drum Assembly – 3 Inch Head
3024-21	78-8052-6566-3	Washer – Friction

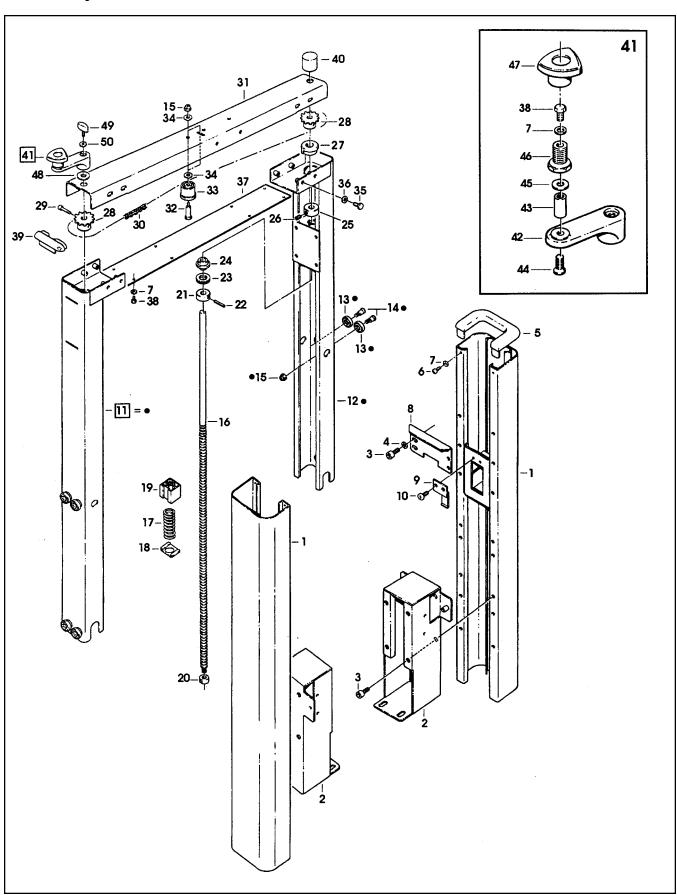


Figure 3269

Ref. No.	3M Part No.	Description
3269-1	78-8060-8489-9	Column – Outer
3269-2	78-8076-5426-0	Plate
3269-3	26-1003-7964-8	Screw – Soc Hd, M8 x 20
3269-4	78-8017-9318-9	Washer – Plain 8 mm
3269-5	78-8060-8491-5	Cap - Column
3269-6	26-1002-4955-1	Screw – Self-Tap, 8P x 13
3269-7	78-8005-5740-3	Washer – Plain 4 mm
3269-8	78-8060-8492-3	Stop – Height
3269-9	78-8076-5482-3	Plate – Nut Stop
3269-10	78-8060-8087-1	Screw – M5 x 10
3269-11	78-8060-8494-9	Column Assembly – Inner
3269-12	78-8060-8495-6	Column – Inner
3269-13	78-8054-8617-8	Bearing - Special
3269-14	78-8054-8589-9	Screw – Special
3260-15	26-1003-6916-9	Nut – Locking, M6, Plastic Insert
3269-16	78-8060-8496-4	Lead Screw
3269-17	78-8054-8969-3	Spring
3269-18	78-8054-8970-1	Bed Plate For Spring
3269-19	78-8054-8571-7	Nut – Plastic
3269-20	78-8054-8968-5	Nut – Special
3269-21	78-8054-8585-7	Collar
3269-22	78-8054-8586-5	Pin
3269-23	78-8054-8584-0	Spacer
3269-24	78-8054-8583-2	Bushing
3269-25	78-8060-8497-2	Bushing – Lead Screw
3269-26	78-8059-5617-0	Set Screw – M6 x 8
3269-27	78-8060-8498-0	Bushing – Inner Column
3269-28	78-8060-8499-8	Sprocket – 3/8 Inch, Z=13
3269-29	26-1003-7946-5	Screw – Soc Hd, M4 x 25
3269-30	78-8076-4818-9	Chain – 3/8 Inch, Pitch 197
3269-31	78-8113-6803-0	Housing – Chain, W/English Language Label
3269-32	78-8060-7878-4	Idler Screw
3269-33	78-8070-1503-3	Roller – Chain Tensioning
3269-34	78-8042-2919-9	Washer – Triple, M6
		• •
3269-35	26-1003-5829-5	Screw – Hex Hd, M6 x 12 Washer – Flat M6
3269-36	26-1000-0010-3	Cover
3269-37	78-8076-5428-6	
3269-38	78-8010-7157-8	Screw – Hex Hd, M4 x 10
3269-39	78-8070-1505-8	Cap – Inner Column
3269-40	78-8070-1506-6	Cover – Screw
3269-41	78-8076-4807-2	Crank Assembly
3269-42	78-8076-5422-9	Crank
3269-43	78-8070-1509-0	Shaft – Crank
3269-44	26-1005-5316-8	Screw – Flat Hd Hex Dr, M5 x 16
3269-45	78-8070-1510-8	Washer – Nylon, 7 x 15 x 1
3269-46	78-8070-1511-6	Bushing
3269-47	78-8070-1512-4	Knob – VTR-B-M12
3269-48	78-8076-4800-7	Washer – Crank
3269-49	78-8076-4821-3	Key – Stop
3269-50	78-8076-4809-8	Washer – Crank

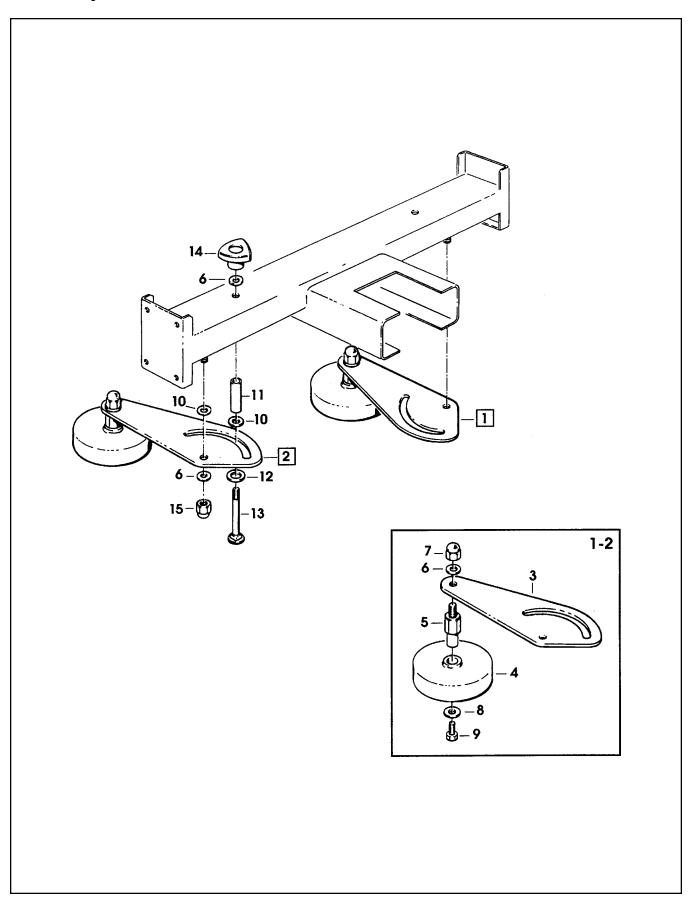


Figure 5350

Ref. No.	3M Part No.	Description
5350-1	78-8100-0876-9	Compression Roller Assembly – R/H
5350-2	78-8100-0877-7	Compression Roller Assembly – L/H
5350-3	78-8070-1559-5	Support – Compression Roller
5350-4	78-8054-8974-3	Pressure Roller
5350-5	78-8070-1560-3	Stud – Roller Mounting
5350-6	78-8052-6566-3	Washer – Friction
5350-7	78-8070-1561-1	Nut – M10
5350-8	26-1004-5507-5	Washer – M8
5350-9	26-1003-5841-0	Screw – M8 x 16
5350-10	78-8017-9074-8	Washer – Nylon, 15 mm
5350-11	78-8070-1562-9	Tube – Roller Support
5350-12	12-7991-1752-3	Washer – Plain, M14
5350-13	78-8070-1563-7	Screw - M10 x 80
5350-14	78-8070-1549-6	Knob – VTR-B-M10
5350-15	26-1003-6918-5	Nut – Plastic Insert, M10 Hex Flange

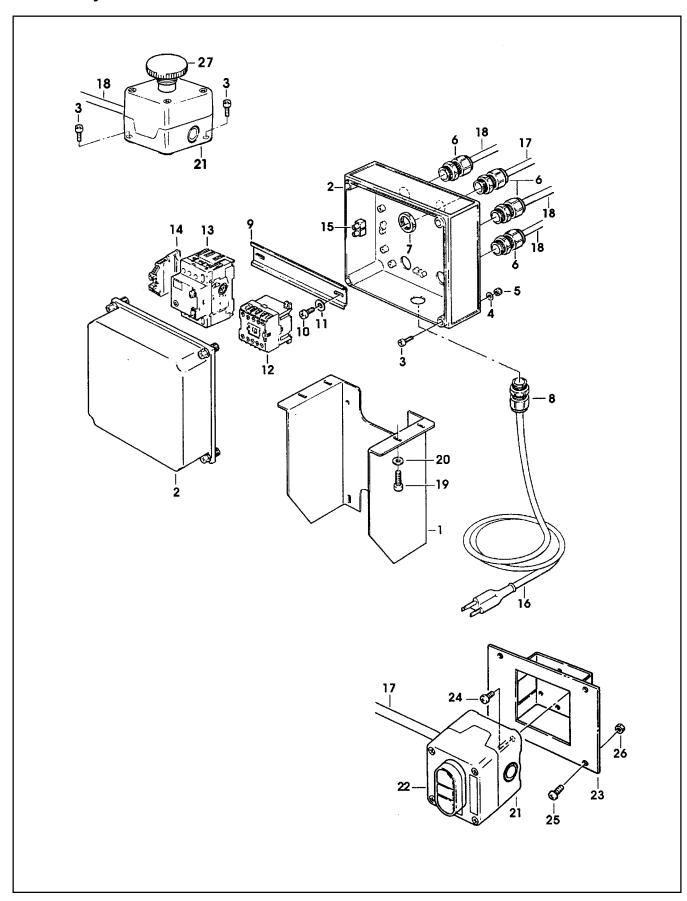


Figure 5817

Ref. No.	3M Part No.	Description
5817-1	78-8094-6379-3	Support – Box
5817-2	78-8094-6380-1	Box
5817-3	78-8094-6381-9	Screw – Soc Hd, Hex Hd, M4 x 15
5817-4	78-8005-5740-3	Washer – Plain, 4 mm
5817-5	26-1003-6914-4	Nut - Plastic Insert, M4
5817-6	78-8076-4715-7	Cord Grip
5817-7	78-8076-5211-6	Set Nut – GMP 13.5
5817-8	78-8057-5807-1	Cord Grip – ST 16
5817-9	78-8094-6382-7	Guide – Mounting
5817-10	78-8028-8208-0	Screw – 6P x 9,5
5817-11	78-8017-9018-5	Washer – Plain, M4
5817-12	78-8094-6383-5	Contactor – Sprecher and Schuh, CA-5-10, 110V, 60HZ
5817-13	78-8076-5378-3	Circuit Breaker - Sprecher and Schuh, KTA-3-25
5817-14	78-8094-6384-3	Clamp – VGPE 4/6
5817-15	78-8076-4968-2	Terminal
5817-16	26-1009-8724-2	Power Cord W/Plug – Type SO
5817-17	78-8100-1038-5	Cable – 3 x 20 AWG, 5 MT
5817-18	78-8060-8053-3	Wire – 3-Pole, 5 Meters Length
5817-19	26-1003-7957-2	Screw – Soc Hd, Hex Hd, M6 x 16
5817-20	26-1000-0010-3	Washer – Flat, M6
5817-21	78-8076-5194-4	Box – E-Stop
5817-22	78-8094-6386-8	Switch – On/Off, Sprecher and Schuh, DM3N-C-01/10
5817-23	78-8100-1039-3	Support – On/Off Switch
5817-24	78-8017-9257-9	Screw - Phillis Hd, M4 x 10
5817-25	78-8060-8087-1	Screw – M5 x 10
5817-26	78-8010-7417-6	Nut – Hex, M5
5817-27	78-8094-6385-0	E-Stop – Allen Bradley, 800EP-MTS643LX01

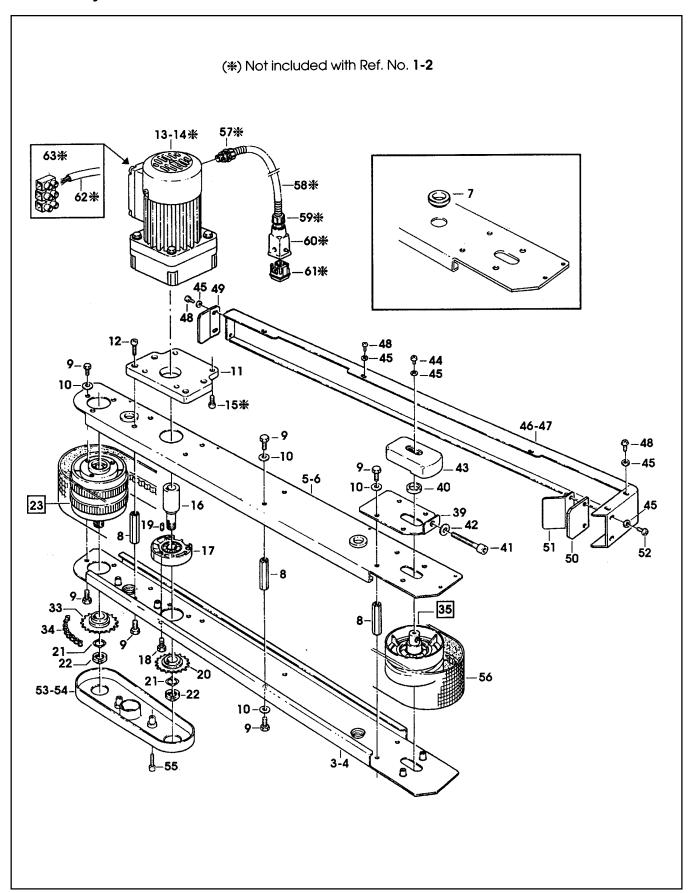


Figure 6164/1 of 2

Figure 6164 (page 1 of 2)

Ref. No.	3M Part No.	Description
6164-1	78-8100-1205-0	Drive Assembly – R/H W/O Motor
6164-2	78-8100-1206-8	Drive Assembly – L/H W/O Motor
6164-3	78-8100-1207-6	Guide – Lower, R/H
6164-4	78-8100-1208-4	Guide – Lower, L/H
6164-5	78-8113-6818-8	Guide – Upper, R/H, W/English Language Label
6164-6	78-8113-6819-6	Guide – Upper, L/H, W/English Language Label
6164-7	78-8091-0500-6	Bushing – Side Drive
6164-8	78-8055-0661-1	Spacer
6164-9	26-1003-5829-5	Screw – Hex Hd, M6 x 12
6164-10	26-1000-0010-3	Washer – Flat M6
6164-11	78-8094-6109-4	Support – Gearmotor
6164-12	78-8023-2334-1	Screw - Soc Hd, Hex Soc, M6 x 25
6164-13	78-8070-1522-3	Gearmotor - Bodine, 42X5BFC1-E2, 156:1, 115V, 60 Hz
6164-14	26-1011-8828-7	Capacitor – 15μF, 300VAC, Motor Run
6164-15	78-8070-1523-1	Screw - 1/4 - 28 x 1/2 SHCS
6164-16	78-8094-6174-8	Extension – Gearmotor
6164-17	78-8076-5439-3	Flange Assembly
6164-18	78-8060-7886-7	Screw – Hex Hd, M6 x 16, Special
6164-19	78-8046-8135-7	Key – 5 x 5, 12 mm
6164-20	78-8091-0758-0	Sprocket – 3/8 Inch, Z=14
6164-21	78-8057-5834-5	Tab Washer
6164-22	78-8057-5835-2	Centering Washer
6164-23	78-8076-5440-1	Pulley Assembly – Drive
6164-24	78-8076-5441-9	Roller – Drive
6164-25	78-8052-6713-1	Ring – Polyurethane
6164-26	78-8055-0669-4	Shaft – Pulley Keyed
6164-27	78-8057-5739-6	Key – M5 x 5 x 30 mm
6164-28	78-8055-0668-6	Washer – 15/26 x 1
6164-29	78-8091-0382-9	Belleville Washer – /16
6164-30	78-8076-5442-7	Flange Assembly
6164-31	26-0001-5862-1	Screw – Flat Hd Soc, M5 x 12
6164-32	78-8054-8877-8	Washer - 5,5/20 x 4
6164-33	78-8091-0759-8	Sprocket – 3/8 Inch Z=23
6164-34	78-8076-4933-6	Chain – 3/8 Inch Pitch, 52 Pitch

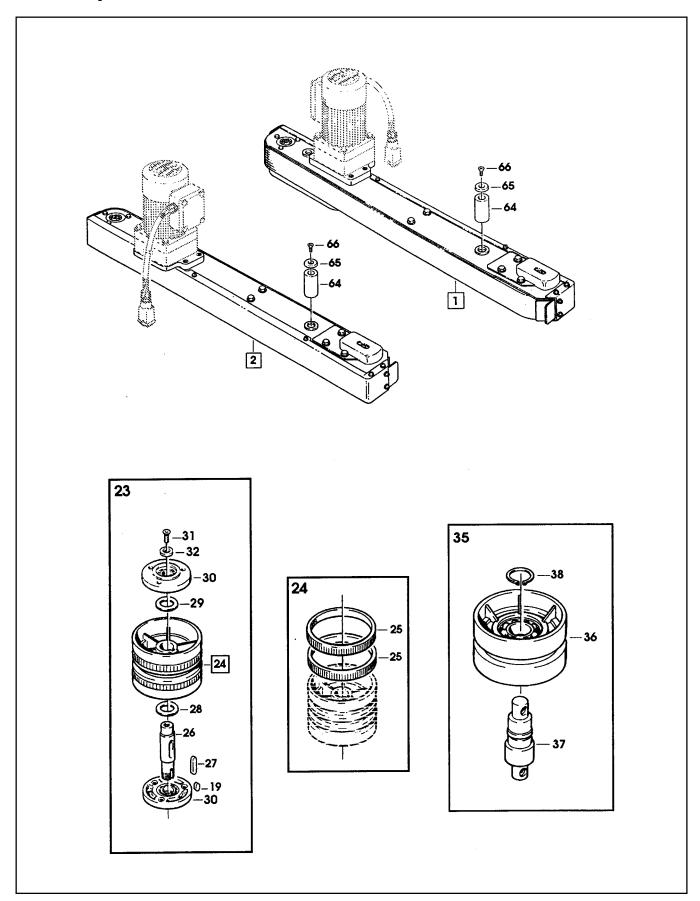


Figure 6164/2 of 2

Figure 6164 (page 2 of 2)

Ref. No.	3M Part No.	Description
6164-35	78-8076-5443-5	Pulley Assembly – Idler
6164-36	78-8055-0660-3	Roller – Idler
6164-37	78-8076-5444-3	Shaft – Idler Pulley
6164-38	12-7997-0272-0	E-Ring – M-25
6164-39	78-8076-5445-0	Tensioning – Belt
6164-40	78-8076-5446-8	Washer – Shaft
6164-41	78-8070-1519-9	Screw – Soc Hd, Hex Hd, M8 x 70
6164-42	78-8017-9318-9	Washer – Plain 8 mm
6164-43	78-8076-5448-4	Cover – Belt Tensioner
6164-44	78-8055-0850-0	Screw - Cap, M4 x 6
6164-45	78-8005-5740-3	Washer – Plain 4 mm
6164-46	78-8100-1211-8	Cover – Drive, R/H
6164-47	78-8100-1212-6	Cover – Drive, L/H
6164-48	26-1002-5753-9	Screw – Self-Tapping
6164-49	78-8100-1213-4	Guard – Belt
6164-50	78-8100-1214-2	Guard – Rubber
6164-51	78-8100-1215-9	Guard – Metal
6164-52	78-8076-5255-3	Screw - Phillips Hd, M4 x 12
6164-53	78-8091-0764-8	Cover – Chain, Right
6164-54	78-8091-0765-5	Cover - Chain, Left
6164-55	78-8010-7165-1	Screw – Flat Hd Soc, M5 x 25
6164-56	78-8076-5452-6	Belt – Box Drive
6164-57	78-8060-7631-7	Connector – 3/8 Inch
6164-58	78-8076-5197-7	Sleeving - /12, 800 mm
6164-59	78-8060-7626-7	Connector – PG 11/12
6164-60	78-8060-7877-6	Plug Housing – Vertical
6164-61	78-8060-7875-0	Plug Male
6164-62	78-8060-8053-3	Wire – 3-Pole, 5 Meters Length
6164-63	78-8076-4968-2	Terminal
6164-64	78-8076-5453-4	Roller
6164-65	78-8054-8577-4	Washer – Special
6164-66	26-1001-9843-6	Screw – Flat Soc Hd, M6 x 16

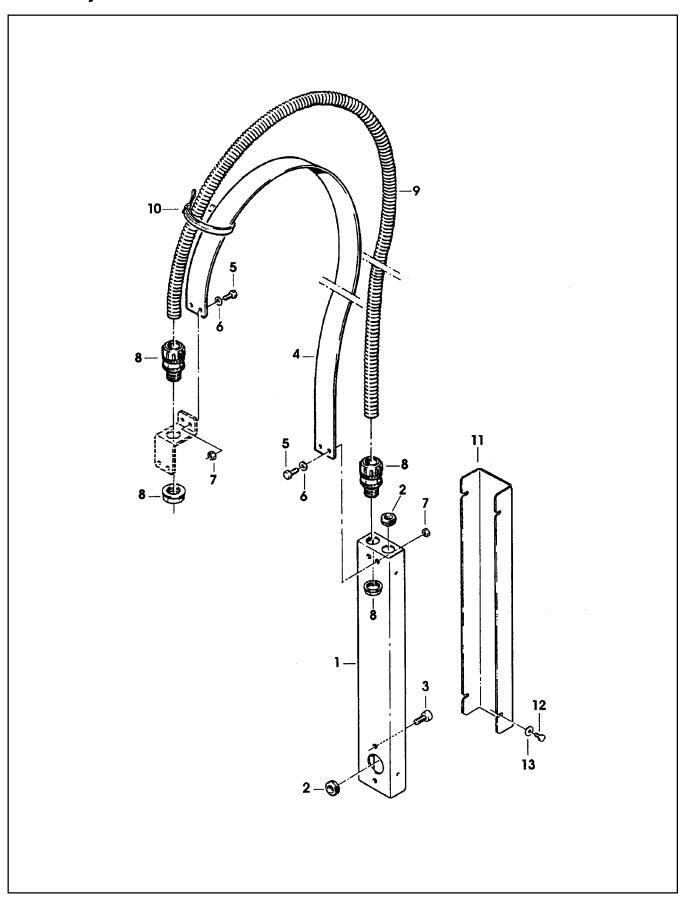


Figure 6166

Ref. No.	3M Part No.	Description
6166-1	78-8100-1218-3	Housing – Wire
6166-2	78-8060-7758-8	Fairlead – /20
6166-3	26-1003-7963-0	Screw – Soc Hd, M8 x 16
6166-4	78-8076-4636-5	Strap – Wire
6166-5	78-8010-7163-6	Screw – Hex Hd, M5 x 10
6166-6	78-8005-5741-1	Washer – Flat, M5
6166-7	78-8010-7417-6	Nut – Hex, M5
6166-8	78-8060-7631-7	Connector – 3/8 Inch
6166-9	78-8060-8154-9	Sleeving – 0,90 MT
6166-10	78-8060-8029-3	Clamp - 140 x 3,5
6166-11	78-8100-1219-1	Cover – Housing
6166-12	78-8010-7157-8	Screw – Hex Hd, M4 x 10
6166-13	78-8017-9018-5	Washer – Plain, M4

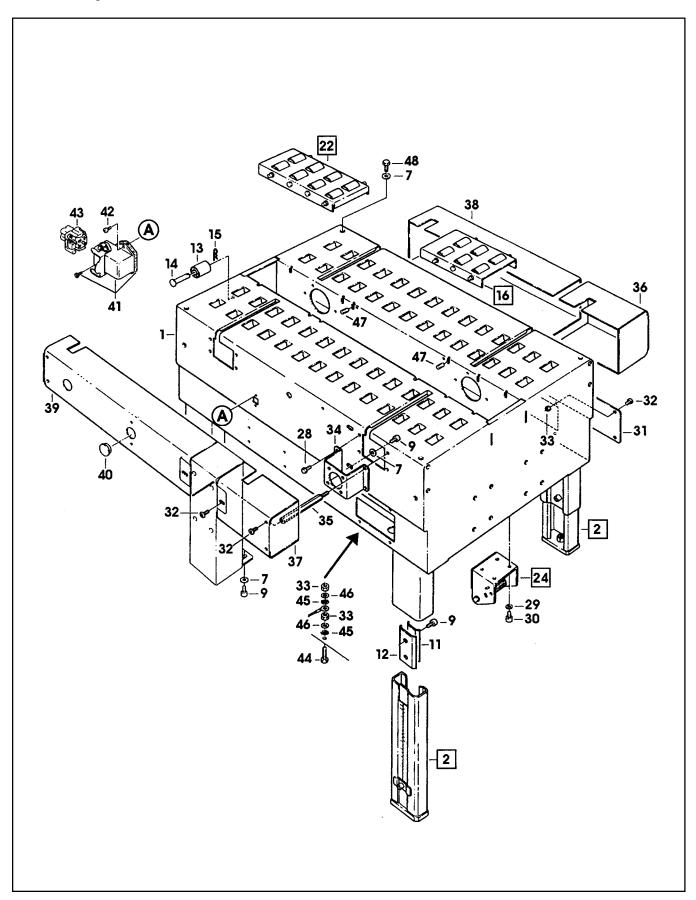


Figure 6170/1 of 2

Figure 6170 (page 1 of 2)

Ref. No.	3M Part No.	Description
6170-1	78-8076-5380-9	Bed – Conveyor
6170-2	78-8076-5381-7	Leg Assembly – Inner, W/Stop
6170-3	78-8076-5382-5	Leg – Inner
6170-4	78-8060-8480-8	Pad – Foot
6170-5	78-8055-0867-4	Screw – Hex Hd, M8 x 30
6170-6	78-8017-9313-0	Nut – Self-Locking, M8
6170-7	78-8017-9318-9	Washer – Plain 8 mm
6170-8	78-8076-5383-3	Stop – Leg
6170-9	26-1003-7963-0	Screw – Soc Hd, M8 x 16
6170-10	78-8060-8481-6	Label – Height
6170-11	78-8052-6676-0	Clamp – Outer
6170-12	78-8052-6677-8	Clamp – Inner
6170-13	78-8060-7693-7	Roller – 32 x 38
6170-14	78-8076-5384-1	Shaft – Roller
6170-15	78-8076-5385-8	Spring
6170-16	78-8094-6100-3	Conveyor Assembly – Front
6170-17	78-8076-5387-4	Conveyor – Front
6170-18	78-8091-0780-4	Shaft – Central Roller
6170-19	78-8091-0781-2	Shaft – Side Roller
6170-20	26-1003-5828-7	Screw – Hex Hd, M6 x 10
6170-21	78-8076-5389-0	Mounting – Conveyor
6170-22	78-8094-6101-1	Conveyor Assembly – Rear
6170-23	78-8076-5391-6	Conveyor – Rear
6170-24	78-8076-5462-5	Support – Tape Drum
6170-25	78-8076-4758-7	Support – Tape Bracket
6170-26	78-8076-4759-5	Shaft – Roller
6170-27	78-8076-5030-0	Roller – Knurled, L=114

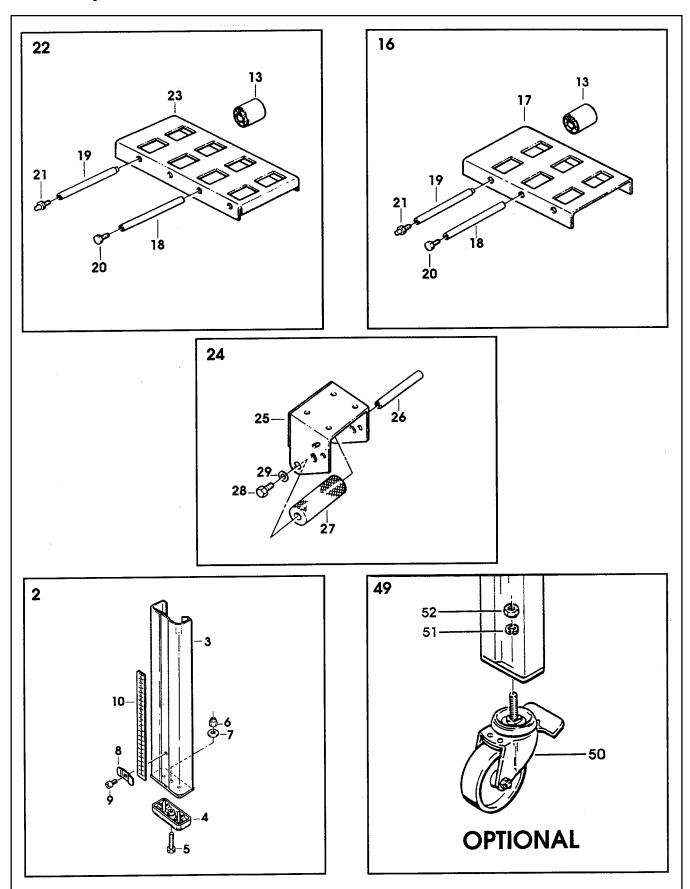


Figure 6170/2 of 2

Figure 6170 (page 2 of 2)

Ref. No.	3M Part No.	Description
6170-28	78-8032-0375-7	Screw – Hex Hd, M6 x 16
6170-29	26-1000-0010-3	Washer – Flat M6
6170-30	26-1003-7957-2	Screw – Soc Hd Hex Hd, M6 x 16
6170-31	78-8060-8487-3	Cover – Switch
6170-32	78-8060-8087-1	Screw – M5 x 10
6170-33	78-8010-7417-6	Nut – Hex M5
6170-34	78-8076-5393-2	Plate – Tape Bracket Support
6170-35	78-8076-5394-0	Spacer
6170-36	78-8076-5395-7	Cover – Side, Front, R/H
6170-37	78-8076-5396-5	Cover – Side, Front, L/H
6170-38	78-8100-1203-5	Cover – Side, Rear, R/H
6170-39	78-8113-6813-9	Cover – Side, Rear, L/H, W/English Language Label
6170-40	78-8076-4517-7	End Cap – /22 x 1
6170-41	78-8060-7876-8	Cover – Plug Lateral
6170-42	78-8028-8208-0	Screw – 6P x 9,5
6170-43	78-8060-7873-5	Plug – Female
6170-44	78-8060-8488-1	Screw – Hex Hd, M5 x 20
6170-45	78-8046-8217-3	Washer – Special
6170-46	78-8005-5741-1	Washer – Plain M5
6170-47	78-8076-4500-3	Stud – Mounting
6170-48	26-1003-5841-0	Screw – M8 x 16
6170-49	78-8098-9076-3	Caster Assembly
6170-50	26-1009-9096-4	Caster – Dual Locking
6170-51	26-1009-9094-9	Washer – Spring, Helical, M12
6170-52	26-1009-9095-6	Nut – M12

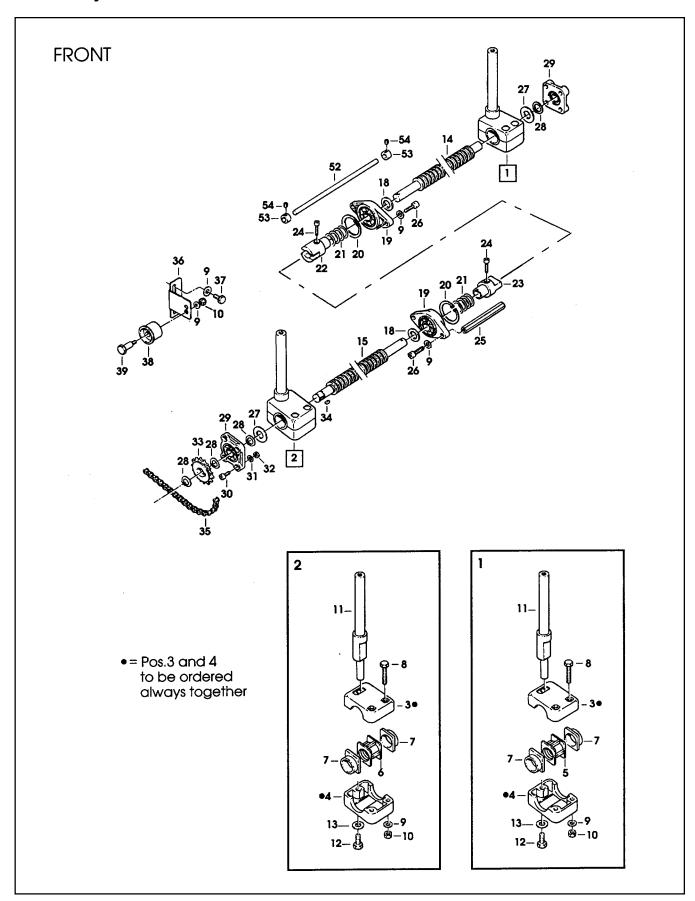


Figure 6171/1 of 2

Figure 6171 (page 1 of 2)

Ref. No.	3M Part No.	Description
6171-1	78-8100-1229-0	Shaft Assembly – Drive R/H
6171-2	78-8100-1230-8	Shaft Assembly – Drive L/H
6171-3	78-8076-5401-3	Block – Upper
6171-4	78-8076-5402-1	Block – Lower
6171-5	78-8076-5403-9	Nut - Block, R/H
6171-6	78-8076-5404-7	Nut – Block, L/H
6171-7	78-8076-5405-4	Bushing – Block
6171-8	78-8076-5239-7	Screw – Hex Hd, M6 x 50
6171-9	26-1000-0010-3	Washer – Flat M6
6171-10	26-1003-6916-9	Nut – Locking, Plastic Insert M6
6171-11	78-8100-1220-9	Shaft - Drive Mount
6171-12	26-1003-5842-8	Screw - Hex Hd, M8 x 20
6171-13	78-8017-9318-9	Washer – Plain 8 mm
6171-14	78-8076-5407-0	Screw - R/H
6171-15	78-8076-5408-8	Screw - L/H
6171-16	78-8076-5409-6	Screw – Handle, R/H
6171-17	78-8076-5410-4	Screw – Handle, L/H
6171-18	78-8076-5411-2	Spacer – Screw
6171-19	78-8076-5412-0	Flange – W/Bearing
6171-20	78-8060-8010-3	Snap Ring – 42 mm Shaft
6171-21	78-8076-5413-8	Spring
6171-22	78-8076-5414-6	Coupling – Screw, Female
6171-23	78-8076-5415-3	Coupling – Screw, Male
6171-24	26-1003-7946-5	Screw - Soc Hd, M4 x 25
6171-25	78-8076-5416-1	Spacer – Hex, 10 x 107
6171-26	78-8023-2334-1	Screw - Soc Hd, Hex Soc, M6 x 25
6171-27	78-8076-5417-9	Spacer

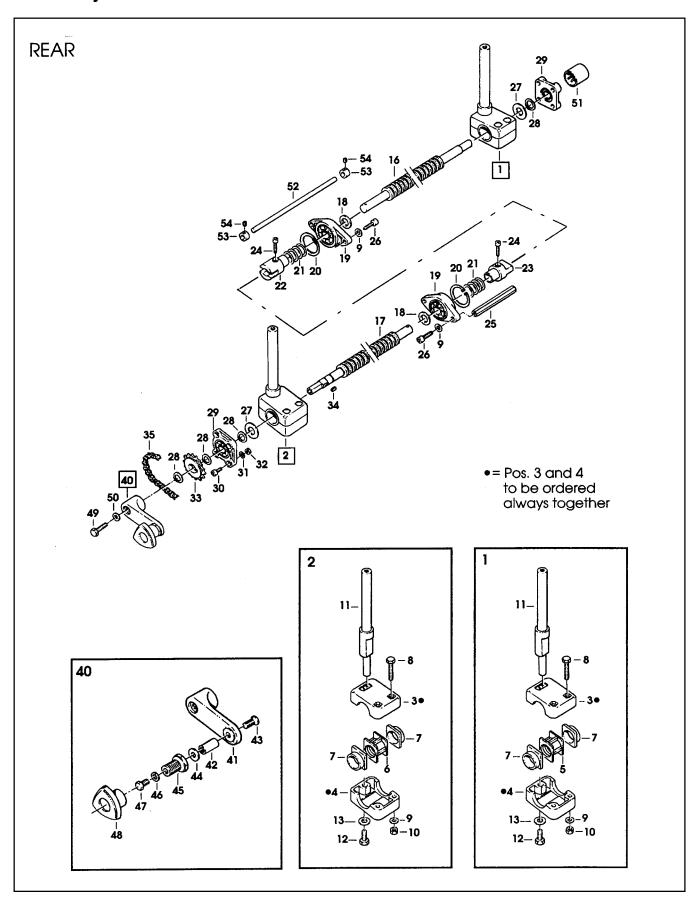


Figure 6171/2 of 2

Figure 6171 (page 2 of 2)

Ref. No.	3M Part No.	Description
6171-28	78-8017-9079-7	Ring – Snap For 15 mm Shaft
6171-29	78-8076-5418-7	Support – Screw
6171-30	26-1003-7949-9	Screw – Soc Hd Hex Soc, M5 x 12
6171-31	78-8005-5741-1	Washer – Plain M5
6171-32	78-8010-7417-6	Nut – Hex M5
6171-33	78-8076-5419-5	Sprocket – 3/8 Inch Z=16
6171-34	78-8046-8135-7	Key – 5 x 5, 12 mm
6171-35	78-8076-5420-3	Chain – 3/8 Inch, 133 Links
6171-36	78-8076-5421-1	Support – Tension Roller
6171-37	78-8010-7169-3	Screw – Hex Hd, M6 x 12
6171-38	78-8070-1503-3	Roller – Chain Tensioning
6171-39	78-8060-7878-4	Idler Screw
6171-40	78-8076-4807-2	Crank Assembly
6171-41	78-8076-5422-9	Crank
6171-42	78-8070-1509-0	Shaft – Crank
6171-43	26-1005-5316-8	Screw - Flat Hd Hex Dr, M5 x 16
6171-44	78-8070-1510-8	Washer – Nylon, 7 x 15 x 1
6171-45	78-8070-1511-6	Bushing
6171-46	78-8005-5740-3	Washer – Plain 4 mm
6171-47	78-8010-7157-8	Screw – Hex Hd, M4 x 10
6171-48	78-8070-1512-4	Knob – VTR-B-M12
6171-49	78-8032-0375-7	Screw – Hex Hd, M6 x 16
6171-50	78-8076-4809-8	Washer – Crank
6171-51	78-8070-1506-6	Cover – Screw
6171-52	78-8076-5463-3	Shaft
6171-53	78-8076-5424-5	Block
6171-54	78-8076-5425-2	Set Screw – M4 x 3

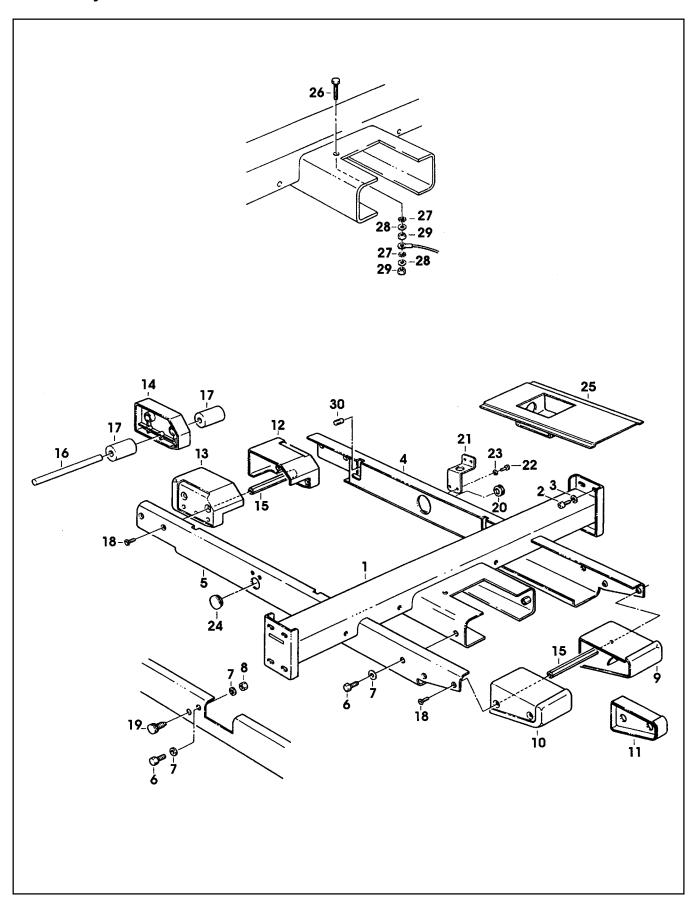
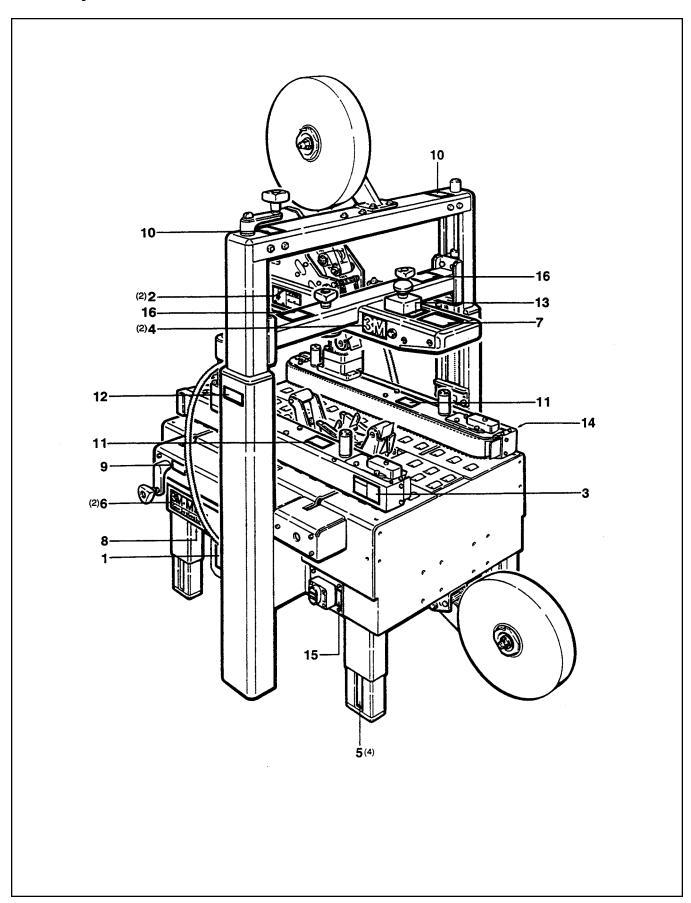


Figure 6172

Ref. No.	3M Part No.	Description
6172-1	78-8113-6871-7	Cross Bar – Lower, W/English Language Label
6172-2	26-1003-7957-2	Screw – Soc Hd Hex Hd, M6 x 16
6172-3	78-8100-1042-7	Washer - /15 x 6.35 x 2
6172-4	78-8113-6810-5	Frame – R/H, W/English Language Label
6172-5	78-8113-6809-7	Frame – L/H, W/English Language Label
6172-6	26-1003-5842-8	Screw – Hex Hd, M8 x 20
6172-7	78-8017-9318-9	Washer – Plain, 8 mm
6172-8	26-1000-1347-8	Nut – Hex, M8
6172-9	78-8070-1574-4	Slide – Front, Right
6172-10	78-8070-1575-1	Slide - Front, Left
6172-11	78-8076-5465-8	Spacer – Front Slide
6172-12	78-8070-1576-9	Slide – Rear, Right
6172-13	78-8070-1577-7	Slide – Rear, Left
6172-14	78-8076-5466-6	Spacer
6172-15	78-8076-5467-4	Spacer – Head Support
6172-16	78-8076-5468-2	Stud – Head Support
6172-17	78-8076-5469-0	Roller – /32X55
6172-18	26-1005-5316-8	Screw – Flat Hd Hex Dr, M5 x 16
6172-19	78-8070-1555-3	Block – Upper Head
6172-20	78-8060-7758-8	Fairlead – /20
6172-21	78-8054-8955-2	Clamp – Bracket
6172-22	26-1003-5820-4	Screw – Hex Hd, M5 x 12
6172-23	78-8005-5741-1	Washer – Flat, M5
6172-24	78-8076-4517-7	End Cap – /22 x 1
6172-25	78-8113-6758-6	Cover – Upper, W/English Language Label
6172-26	78-8091-0538-6	Screw – Hex Hd, M4 x 20
6172-27	78-8076-4716-5	Star Washer – M4
6172-28	78-8005-5740-3	Washer – Plain, 4 mm
6172-29	78-8010-7416-8	Nut – Hex, M4
6172-30	78-8076-4500-3	Stud – Mounting
6172-31	78-8100-1234-0	Bezel



Safety and Information Labels

800a Safety and Information Labels

A label kit, part number 78-8113-6744-6, is available as a stock item. It contains all the safety and information labels used on the case sealer, or labels can be ordered separately from the following list.

Ref. No.	3M Part No.	Description	Qty.
1	78-8070-1329-3	Warning – Hazardous Voltage	1
2	78-8070-1336-8	Warning – Sharp Knife	2
3	78-8070-1331-9	Warning – Keep Hands Away From Moving Belts	1
4	78-8070-1339-2	Information – 3M Logo	2
5	78-8060-8481-6	Information – Leg Height	4
6	78-8062-4266-1	Information – 3M-Matic	2
7	78-8070-1366-5	Information – Safety Instructions	1
8	78-8068-3852-6	Information – Ground	1
9	78-8098-8955-9	Information - In/Out, Belt Adjustment	2
10	78-8070-1628-8	Information – Up/Down/Lock, Height Adjustment	1
11	78-8070-1629-6	Information – Belt tensioning	2
12	78-8068-3859-1	Label – Service and Spares	1
13	78-8095-1141-9	Label – Stop	1
14	78-8070-1330-1	Label – Warning	1
15	78-8113-6775-0	Label – Electrical On/Off	1
16	78-8113-6912-9	Label – Caution, Pinch Point	2