

**OPERATING MANUAL
FOR
XL2 MACHINES**



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Proprietary Information of Plas-Ties, Co.

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SECTION I: General Information

Thank you for purchasing the XL2 from PLAS-TIES, manufacturers of high quality twist-tying equipment.

Please familiarize yourself and/or any person operating this machine with all functions by carefully reading this manual.

The XL2 is a machine that will twist-tie products inserted into the tying area. The machine can be adjusted to tie almost any product gathered into a round or almost round shape from 3/8-inch diameter up to a maximum of 2-inch diameter.

Model designation and electrical requirements are found on the serial plate on the machine. It is important that you have the correct model for your input power.

Unit comes with standard vertical mount. Additional options include: (1) horizontal mounting frame and (2) Pedestal with wheels for tying height between 3 and 5 feet. (see page 14-15)

With your purchase, we provide FREE on-line technical support for the first 6 months (warranty period). This support is handy for anything from initial set-up of your machine to identifying replacement parts and basic troubleshooting.

**Technicians and Web Based Support Available:
7:00am to 3:00pm
(Pacific Standard Time)**

SECTION I: General Information

SUPPLIES AND SERVICE

PLAS-TIES twist tie material and service should be ordered from an authorized dealer, distributor, or:

PLAS-TIES

14272 Chambers Road

Tustin, CA 92780

Telephone: (800) 854-0137 or (714) 542-4487

Fax: (714) 972-2978

Email: info@plasties.com

When contacting Plas-Ties, please have the following information handy:

- 1) Model Number and Serial Number (see name plate)
- 2) Date of Purchase
- 3) Number of cycles on machine counter
- 4) Type of tie material in use
- 5) Name of part or description (for replacement parts - see Appendix for reference guide)

REQUEST FOR REPAIRS OR SERVICE

For any repair and service requests, please contact customer service at (800) 854-0137 or (714) 542-4487 to obtain an RMA number prior to sending products back to us.

In addition to the information above and the nature of the problem, it is also important to leave the spool of material present on the unit when the problem occurred and send a sample of the item being tied to help in resolving repair issues.

The RMA number issued must be noted on the outside of the shipping box to expedite receipt of repair unit. Please refer to the warranty section for coverage details.

SECTION I: General Information

SAFETY INSTRUCTIONS

The operating procedures outlined in this manual are prepared to facilitate the successful operating of the XL2 machine.

- 1) KEEP ALL SAFETY DEVICES IN PLACE and in working order.
- 2) KEEP WORK AREA CLEAN. Cluttered areas invite accidents.
- 3) DO NOT USE IN DANGEROUS ENVIRONMENT. Do not use machines in a damp or wet location, or where any flammable or noxious fumes may exist. Keep work area well lit.
- 4) KEEP UNAUTHORIZED PEOPLE AWAY. All unauthorized people should be kept out of work area and away from machine.
- 5) DO NOT FORCE MACHINE. It will do the job better and safer at the rate for which it was designed.
- 6) USE THE RIGHT MACHINE. Do not force machine to do a job it is not designed to do.
- 7) DO NOT USE UNDER THE INFLUENCE OF DRUGS OR ALCOHOL
- 8) DIRECT ELECTRICAL CONNECTION TO WALL SOCKET IS HIGHLY RECOMMENDED. If use of extension cord is necessary, make sure your extension cord is UL and CE approved and in good condition. Your extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords if they become damaged.
- 9) WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry that may get caught in moving parts. Wear protective hair covering to contain long hair.
- 10) MAINTAIN MACHINE WITH CARE. Keep machine clean for best and safest performance. Follow instructions for lubricating and keeping machine free of lint.
- 11) DISCONNECT MACHINE before servicing and when changing spool.

SECTION I: General Information

SAFETY INSTRUCTIONS

- 12)REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in off position before plugging in.
- 13)USE THE RECOMMENDED MATERIALS AND REPLACEMENT PARTS. Listing of recommended material and replacement parts is found in this operating manual. The use of improper material and replacement parts may result in malfunction and possible risk of injury, in addition to voiding the warranty.
- 14)CHECK DAMAGED PARTS. Before further use of the machine, any part that is suspected of damage should be carefully checked to determine that it would operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A part that is damaged should be properly repaired or replaced.
- 15)NEVER LEAVE MACHINE RUNNING UNATTENDED. Turn the power off, and do not leave machine until it comes to a complete stop.
- 16)NEVER ALLOW UNTRAINED USERS TO RUN THIS MACHINE.
- 17)IF YOU ARE UNSURE OF THE INTENDED OPERATION, STOP USING THE MACHINE. Seek technical assistance or instruction from trained personnel or manufacturer service department.

SECTION I: General Information

CAUTION:
DO NOT ATTEMPT TO OPERATE YOUR XL2
MACHINE BEFORE READING THE OPERATING
INSTRUCTIONS.

WARRANTY

Purchaser acknowledges that there are no warranties, expressed or implied, made by **PLAS-TIES**, its distributors or sales representatives related to the XL2 machine except the manufacturer's warranty against defective materials and workmanship as follows:

PLAS-TIES warrants the XL2 machine to be free from defects in materials and workmanship at time of delivery. Liability under this warranty is limited to the repair or exchange of any defective part or parts of the unit providing the same is returned to *PLAS-TIES*, transportation prepaid, within 1 year or 300,000 cycles (based on machine counter), whichever comes first. THE WARRANTY BEGINS FROM THE DATE OF INSTALLATION AT CUSTOMER SITE AND NOT DATE OF PURCHASE. IN ORDER TO ACTIVATE THE WARRANTY, THE COMPANY NAME, CONTACT, CITY/STATE, AND SERIAL NUMBER MUST REGISTERED with *PLAS-TIES* or PROOF OF PURCHASE MUST BE PROVIDED. FAILURE TO DO SO WILL RESULT IN LIMITATION OF THE FULL WARRANTY. THIS IS TO INSURE TOTAL QUALITY ASSURANCE AND 800 TOLL FREE TECHNICAL SUPPORT.

The warranty is void on any XL2 machine that has been subject to negligence, accident, misuse, failure to use the equipment as instructed in the manual, or that has been tampered with.

This warranty is void if the XL2 machine is used with anything other than genuine **PLAS-TIES** twist-tie material.

IMPORTANT: If your XL2 machine does not operate properly, please bring it to the attention of **PLAS-TIES**, or the dealer or distributor from whom it was purchased. If repairs are needed, the dealer, distributor or other representative of **PLAS-TIES** will arrange to repair or replace parts within the terms of the warranty.

Warranty coverage is limited to the Continental US, Alaska, Hawaii, Puerto Rico, and Canada.

SECTION II: Specifications

MODEL DESIGNATION

This manual covers the model 510 XL2 machine which is equipped with a 2 amp circuit breaker for overload protection. U.L. approved for the United States.

PERFORMANCE

Up to 30 ties per minute
2-1/2 full twists on product tied

POWER REQUIREMENTS

120 Volts A.C.
2.0 Amp circuit breaker
60 HZ

DIMENSIONS/WEIGHT

Length: 40
Height: 17.5
Width at top: 14
Width at front feet: 16
Weight: 50 pounds

SPOOL REPLACEMENTS

Recommended Spools:

Part# 313: 1500' PL/PA 24 gauge single wire 5/32" width

Part# 314: 1500' PL 24 gauge single wire 5/32" width

SECTION III: Operation

MAJOR COMPONENT DESCRIPTION/ADJUSTMENTS

Brake Assembly: Holds the ribbon spool and creates spool “drag”. No adjustment.

Ribbon Chute: Guides the ribbon through the scissor arms. Critical that the chute is centered to the slot in the ribbon cutter anvil. Correct chute length must be utilized according to diameter of product. To adjust, see Scissor (page 11).

Ribbon Drive Motor: Pulls ribbon through machine. Adjustment is critical to ensure that desired length of ribbon is pulled through during the tying cycle. To adjust:

- 1) Loosen the nylon wingnut.
- 2) Slide the entire ribbon drive assembly and align with the desired length mark on machine chassis.
- 3) Tighten the nylon wingnut.

Stop Guide: Ensures product to be tied is centered to the twister. To adjust:

- 1) Loosen screw.
- 2) Align appropriate diameter to marker.
- 3) Tighten screw.

Tying Diameter Adjustment Dial: Provides visual calibration for product diameter, required ribbon chute length and ribbon length for the ribbon drive motor setting. It is also the fine-tuning adjustment controller for ribbon length.

Motor and Cam: Controls the timing functions of overall tying operation. Timing adjustment is critical. Correct setting has cam set in the home position when XL2 is inactive. The HOME position is correct when the cam following bearing is positioned in notch. To confirm and adjust this setting:

- 1) Disable ribbon feed by turning idler lockout and then activate the tie cycle once.
- 2) Check cam position for HOME position.
- 3) If setting is not correct, loosen set nuts on scissor actuator rod.
- 4) Turn scissor actuator rod in 1/4 turn increments. (Clockwise = delay) (cc = advance)
- 5) Test cycle to confirm. Tighten set nuts when correct.
- 6) Turn idler lockout to engage ribbon feed.

SECTION III: Operation

MAJOR COMPONENT DESCRIPTION/ADJUSTMENTS

Scissor: Places the ribbon around the product to be twist tied. Alignment is critical. Correct setting has the ribbon chute centered to the ribbon cutter anvil slot. To adjust:

- 1)If motor and cam are stopping in HOME position, correct alignment of chute and anvil will be achieved. (see motor/cam adjustment).

Twister: Twists ribbon ends securing the ribbon around the product. Twister position is critical. Correct position is in a vertical position when inactive. To adjust:

- 1)Loosen twister sprocket set screw.
- 2)Turn twister and shaft until twister is in a vertical position.
- 3)Re-tighten set screw.

Ribbon Cutter: Cuts the ribbon to length. Smooth action between knife and cutter anvil is critical. To adjust:

- 1)Remove knife actuator spring tension (part# 920) and slide knife to the left.
- 2)Loosen the screws that secure the cutter anvil.
- 3)Place a .003 shim between the anvil and the knife.
- 4)Hold the cutter anvil against the knife, retighten the screws and remove the shim.
- 5)Replace tension spring.

Important Make certain that the knife is not too tight. The knife must not “stick”, but be secure enough to cut the ribbon cleanly

SECTION III: Operation

PRODUCT STAGES

STAGE 1: Product to be tied is manually inserted into the tying area (A) and the product must come into contact with trigger switch (B). Trigger switch (B) activates the XL2 tying cycle and the stop guide (F) ensures proper positioning. Cycle time is approximately 3 seconds. **Please note that there is a second stop guide located on the underside of the top cover. The top guide should be aligned with the bottom guide.*

STAGE 2: Trigger Switch (B) activates the capacitor (N) in the main drive motor (C) to rotate a single revolution that causes the main timing cam (D) to rotate clockwise.

STAGE 3: The main timing cam activates the cutter cam follower (E), which in turn activates the Ribbon Cutter Knife.

STAGE 4: Simultaneously to STAGE 3, the Scissor Actuator Assembly (G) pulls the scissors (H) forward and around the product in the tying area (A). The ribbon forming arm (I) ensures that the pre-cut ribbon is centered to the tying area then lifts out of the way.

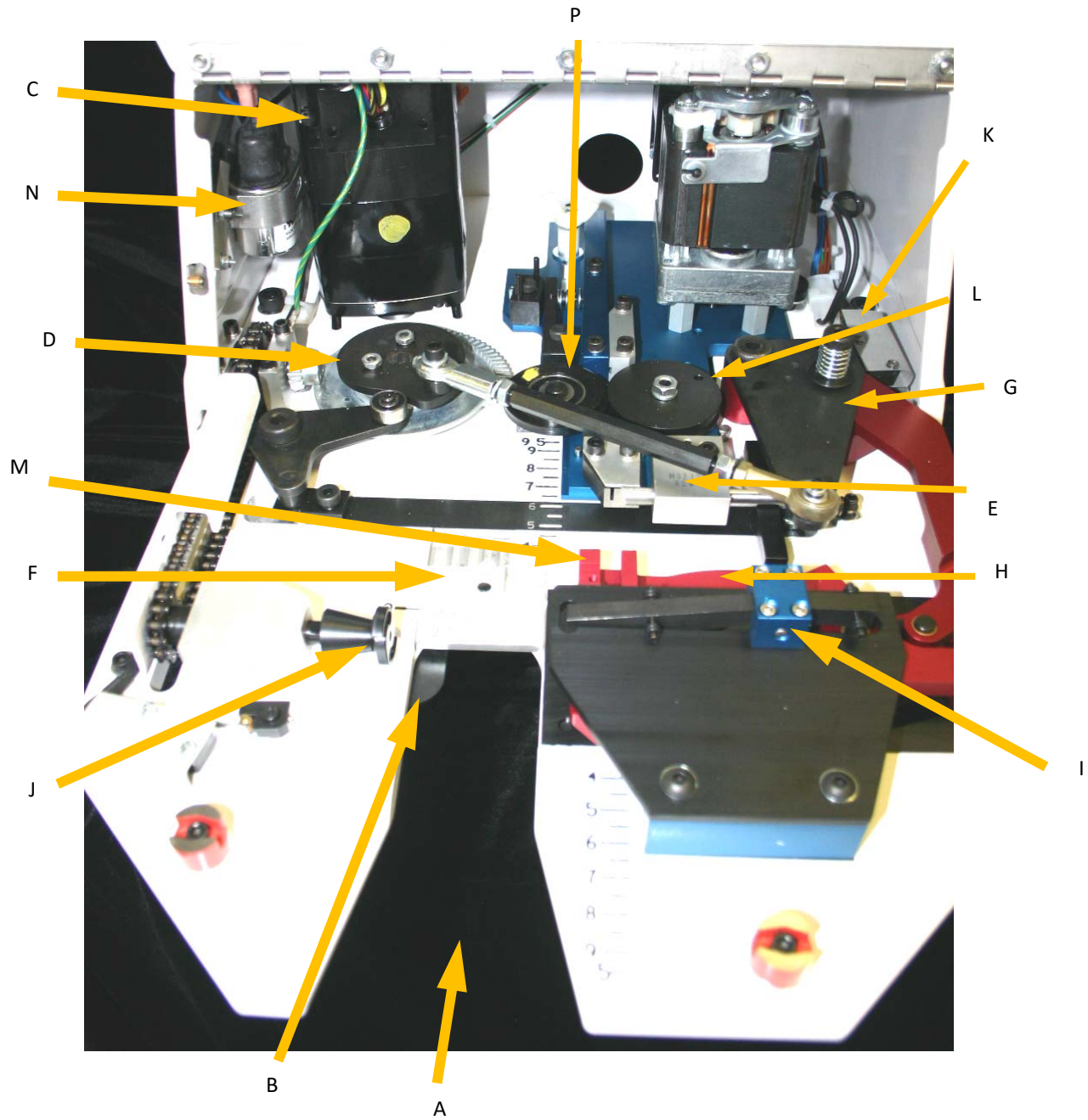
STAGE 5: With the rotation of the main timing cam being approximately one half way through its cycle, the ribbon will be around the product and the ribbon ends are positioned in front of the Twister (J).

STAGE 6: As the Main Timing Cam completes its cycles, the Twister (J) activates, twisting the ribbon ends and securing the ribbon around the product. As the ribbon is twisted, the scissor (H) retract to their HOME position.

STAGE 7: As the scissors (H) return to their HOME position, switches (K) are activated which in turn activate the Ribbon Feed Drive Wheel (L) and it presses against the Ribbon Idler Wheel (P). The ribbon is driven forward at this time. The ribbon continues through the Ribbon Chute (M) where it will stop until STAGE 1 commences again.

SECTION III Operation

PRODUCT STAGES



SECTION III Operation

MOUNTING



STANDARD MOUNT

**Standard equipment. Use with large or small brake*

- 1) Remove the Brake Assembly from packaging and install on the brake arm support using the two 1/4-20 x 1/2 screws provided.
- 2) Follow Loading Twist Tie Material Instructions. (see page 18)



SIDE MOUNT

**Optional Part #56108. Use with large brake only*

- 1) If currently set up for horizontal operation, remove brake assembly by removing the two screws.
- 2) Mount brake assembly on mounting plate with the same screws
- 3) Lay machine on left side so that it is supported by the mounting stand
- 4) Bolt the side mount stand to the XL2 external chassis bracket.
- 5) Follow Loading Twist Tie Material Instructions. (see page 18)



Figure 3

PEDESTAL STAND

(for either horizontal or vertical mount)

**Optional part # 505R033-XL, plus use special brake #A102020.*

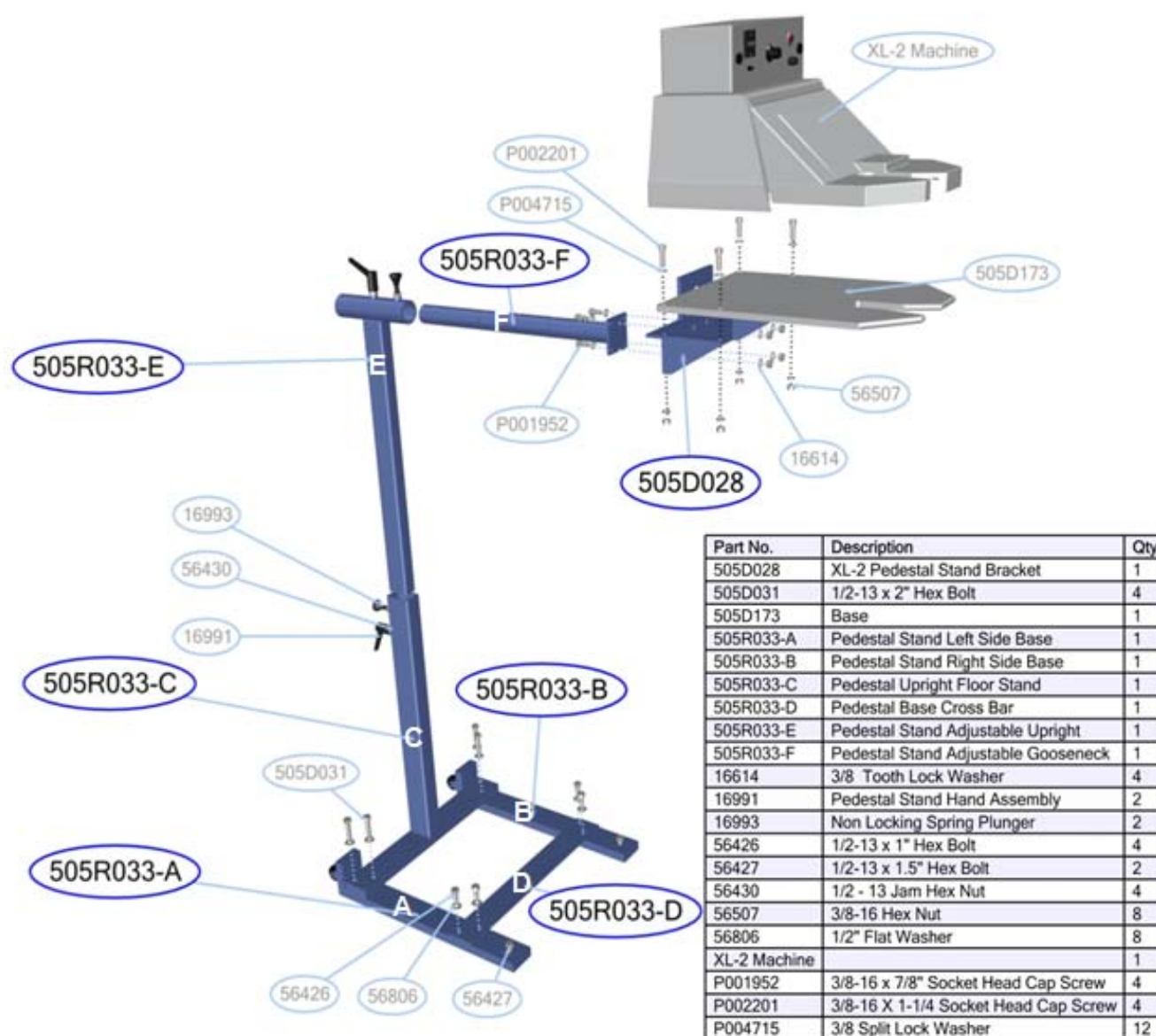
- 1) Remove cover
- 2) Pull apart the 6 Molex connectors on harness
- 3) Remove legs from bottom of chassis & install pedestal mount.
- 4) Re-install, tighten, re-connect steps 1 and 2.

****Please note that the Brake Beam positioning as illustrated in Fig 3 has the Roller Assembly pointed down when installed on the Pedestal Mount.**

SECTION III Operation

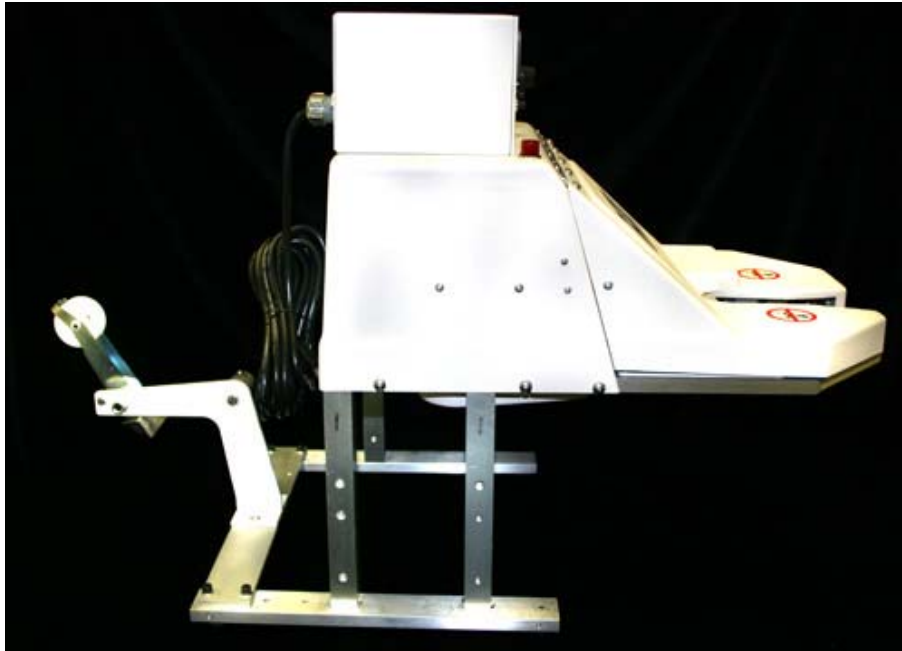
PEDESTAL STAND ASSEMBLY

- 1) Lay out all the parts on the floor. Place legs (A&B) with the wheels, parallel to each other as shown
- 2) Attach the upright (C) to the legs (A&B) using 4 bolts (505D031) and 4 washers (56806)
- 3) Attach cross bar (D) to the legs using 4 bolts (56426) and 4 washers (56806) to the front of the legs
- 4) Place the adjustment upright (E) inside the stationary upright (C). The adjustment upright is held in place by the non-locking spring plunger and secured by the lever clamp.
- 5) Place the support plate tube (F) inside the tube on the adjustment upright and secure the lever clamp
- 6) Add the pedestal stand bracket (505D028) to (F) using 4 screws (P001952) and 4 washers (P004715)
- 7) Screw 4 washers (16614) and 4 Hex Nuts (56507) to secure the bracket to (F)
- 8) Attach XL2 machine frame (505D173) to top of bracket (505D028) with 4 washers (P004715) and 4 screws (P002201). Under the bracket attach with 4 washers (P004715) and 4 nuts (56507).
- 9) Mount the pedestal stand bracket (505D028) with attached XL2 to support plate (F).



SECTION III Operation

BRAKE ASSEMBLY



**STANDARD
Small Brake Arm
Option (A)**

SECTION III Operation

BRAKE ASSEMBLY

Large Brake Arm
Option (B)



Special Brake Arm
Option (C)*

*Used only for Pedestal
Stand Assembly



BRAKE ASSEMBLIES—PARTS LISTING			
DESCRIPTION	SMALL (A)	LARGE (B)	SPECIAL (C)*
Complete Assembly	A102022	A102021	A102020
* Used only for Pedestal Stand Assembly			

SECTION III: Operation

LOADING TWIST TIE MATERIAL

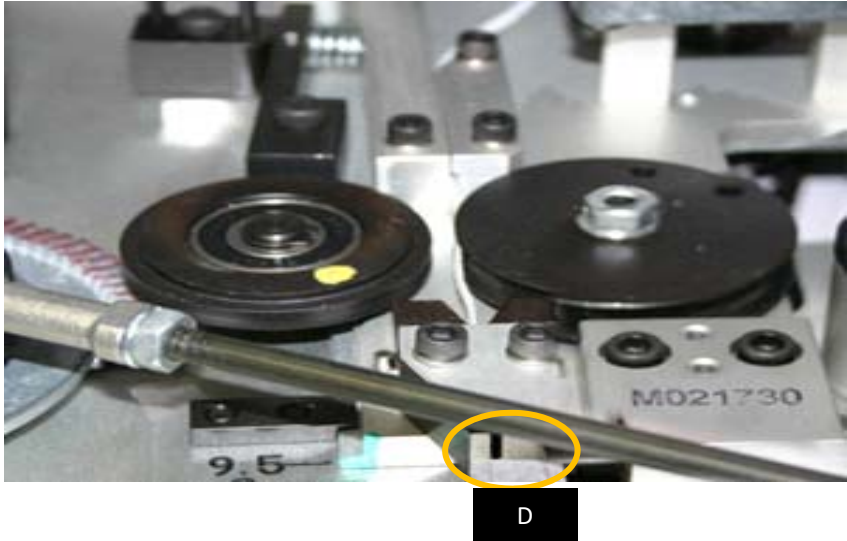
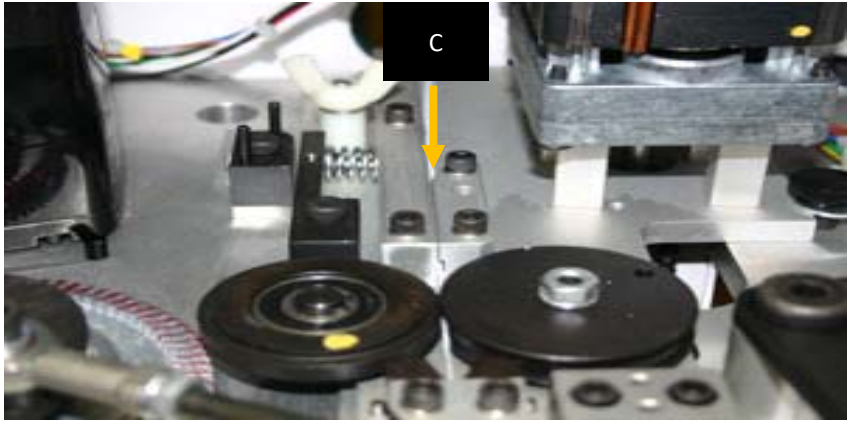
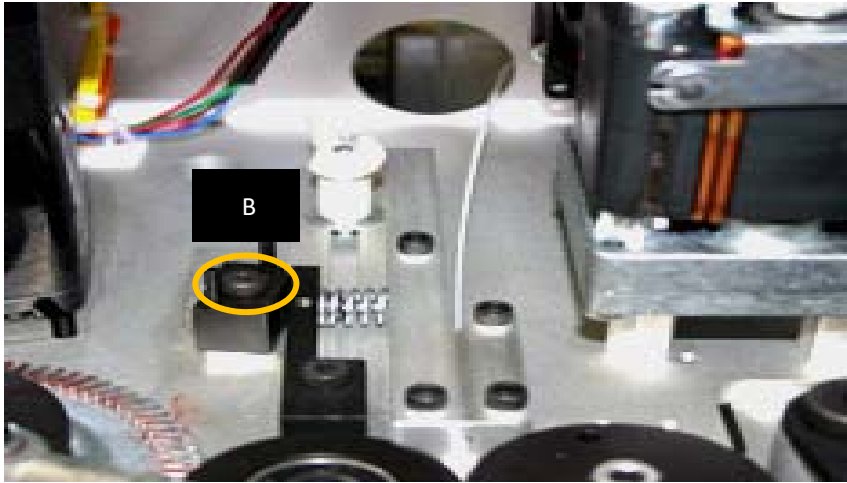
- 1) Turn the power switch "OFF", unplug the power cord and remove any ribbon pieces and/or debris inside the XL2.
- 2) Remove empty ribbon spool by depressing the brake spool arm and then pulling the spool straight away from the brake spindle. Slide the new ribbon spool onto the brake spindle. Feed the ribbon from the top of the spool to under and around the roller wheel on the brake assembly.
- 3) With the ribbon now directed toward the rear of the XL2, look at both sides of the ribbon. One side has "bump" (wire), the other is flat [A]. Pull 1 foot of ribbon off the spool and feed into the rear of the XL2.
- 4) Turn the pressure release cam [B] to separate the ribbon drive wheel and insert the ribbon through the ribbon guide [C] ensuring that the "bump" (wire) side is against wheel and into the cutter anvil guide [D] but not protruding beyond the cutter space.
- 5) Release the pressure release cam to bring the idler wheel to the drive wheel, making sure the ribbon is between the restraint flanges on the idler wheel.



IF THE MACHINE DOES NOT TIE PROPERLY AFTER THREADING, CHECK THE PREVIOUS STEPS TO BE SURE IT HAS BEEN THREADED CORRECTLY. IF YOU STILL INCUR PROBLEMS, REFER TO THE TYING ADJUSTMENTS INSTRUCTIONS ON PAGES 22-23 AS WELL AS THE TROUBLESHOOTING SECTION ON PAGES 26-27.

SECTION III: Operation

LOADING TWIST TIE MATERIAL



SECTION III: Operation

TYING OPERATION

- 1) Support the product to be twist tied with both hands and insert into the left side of the tying area when tying in the vertical position.

**Insert into the bottom of tying area when in the horizontal tying position.*

- 2) Hold the product in place until the product is twist tied. Tying cycle is approximately 3 seconds.
- 3) The product may be removed from the tying area any time after the tying cycle is complete.

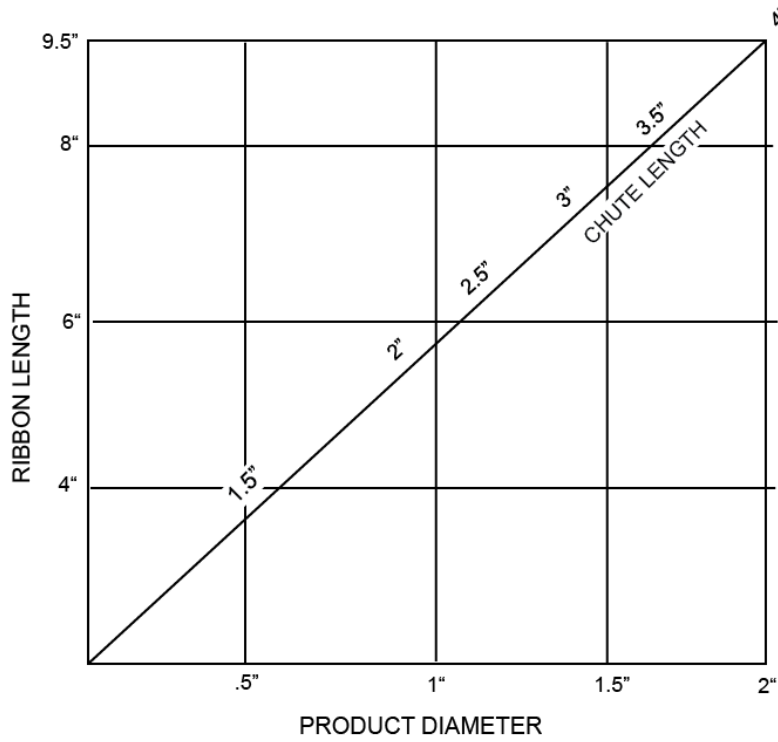
**Periodically, the ribbon length will need to be either lengthened or shortened. Slightly turn the Tying Diameter Adjustment Dial to the left to decrease ribbon length and to the right to increase ribbon length. (See Page 22)*

**Always remove any ribbon pieces from the XL2 before tying.*

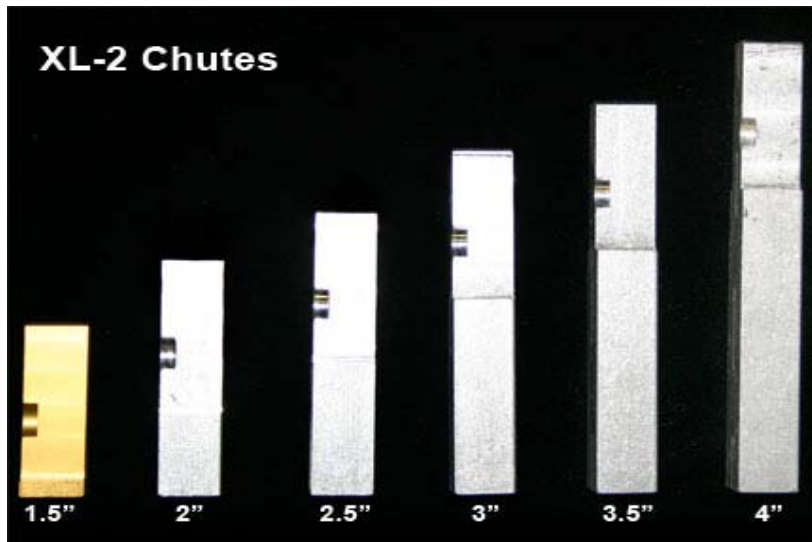
SECTION III: Operation

CHUTES AND RIBBON GUIDE

Length of Chutes



PRODUCT DIAMETER VS. RIBBON LENGTH GRAPH



(Images not to scale)

SECTION III: Operation

TYING ADJUSTMENTS

CAUTION:

Before attempting any adjustment of this machine, the power switch should be in the "OFF" position and the power cord disconnected.

STEP 1: SET TYING DIAMETER DIAL

- 1) Rotate Tying Diameter Adjustment Dial to point arrow to the desired product diameter. This diameter will then align with and indicate ribbon length and the required chute length.
Example: If the tying diameter is 2" then the chute length is 4" and the ribbon length is 9.5"



STEP 2: ADJUST STOP GUIDES

- 1) Loosen screw [A] and move the stop guide [B] to the correct product diameter.
- 2) Tighten screw. This aligns and centers the product to be tied directly in front of the twister shaft [C].

STEP 3: ADJUST RIBBON DRIVE MOTOR

- 1) Loosen the wingnut [D] and slide the entire ribbon drive assembly [E] to align with required ribbon length as indicated from STEP 1.
- 1) Re-tighten the wingnut.

STEP 4: CHANGE RIBBON CHUTE

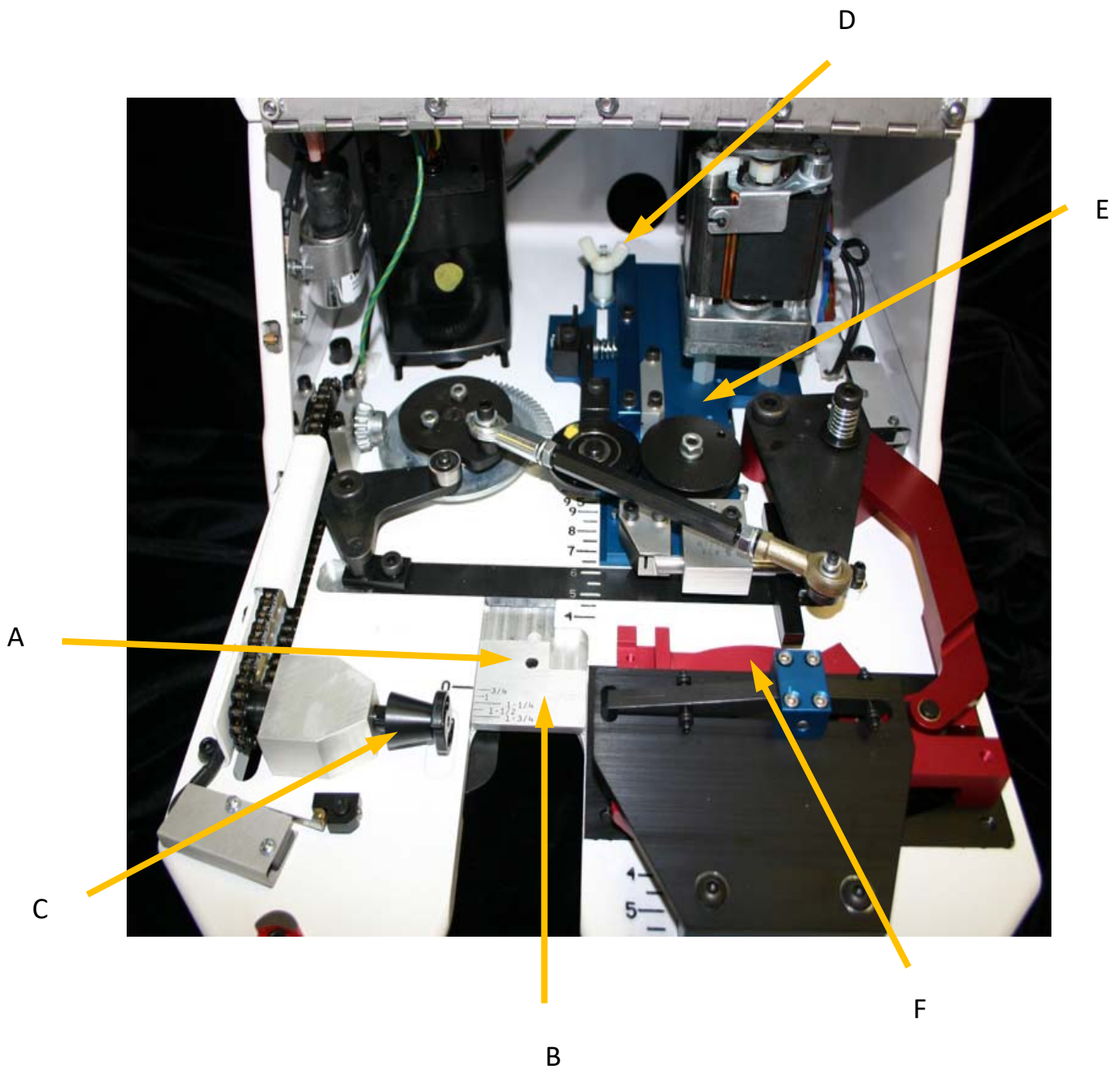
- 1) Remove screw and washer on scissor arm [F].
- 2) Lift out chute
- 3) Install new ribbon chute, tighten screw (be certain that the ribbon chute is centered to the slot in the ribbon cutter anvil)
- 1) Re-thread ribbon through machine

STEP 5: TEST TYING MATERIAL

- 1) Re-connect power supply and turn the power switch on.
- 2) Insert desired material into left side of tying area and activate the tying cycle.
- 3) Find tune ribbon length if required, by slightly rotating the Tying Diameter Adjustment Dial to achieve optimum ribbon length.

SECTION III: Operation

TYING ADJUSTMENTS



SECTION IV: Maintenance

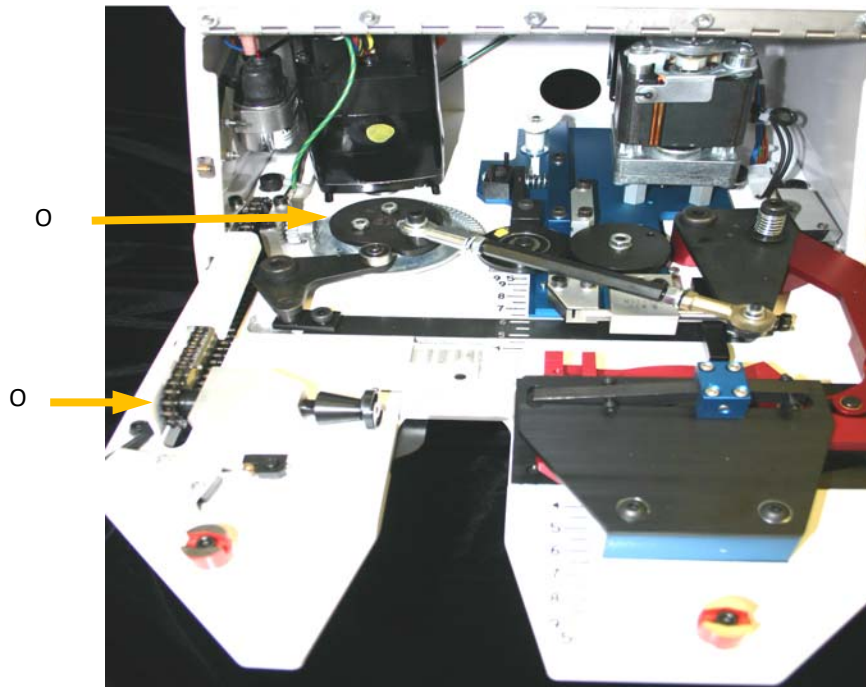
GENERAL

The Tie-Matic machine is designed for simple operation and, with reasonable care and maintenance, will provide long service.

LUBRICATION

- 1) Turn OFF the machine
- 2) Air hose the dust from the machine
- 3) Lubricate the gear segment and gear chains sparingly with food machinery gear grease every 100,000 cycles. Apply to areas marked with [O].

NOTE: The main friction points are outfitted with oil impregnated bronze bushings which provide a continuously lubricated surface. Added lubrication at pivot and linkage points is not necessary.



CAUTION:
DO NOT OVER-LUBRICATE MACHINE or
USE SPRAY LUBRICANTS

It is important that the material feed drum and idler pressure wheel be kept free of lubricants. Excess lubrication to the drum will result in an improper tie due to material slippage, requiring a thorough cleaning of the material feed drum and idler wheel before reuse. Excess oil lubrication could damage the motor.

SECTION V: Troubleshooting

SOLUTIONS MATRIX

	CONDITION	CAUSE	REMEDY
Missing Ties	Ribbon around product but not twisted	a. Incorrect ribbon length b. Twister installed backwards	a. Adjust for longer length ribbon (see pg. 22-23) b. Unscrew twister and reinstall 180°
	Above problem but not consistent	a. Possible malfunction of Time Delay Relay yielding sporadic ribbon length	a. Replace Time Delay Relay
	Ribbon is carried back with scissors	a. Safety device on arm is releasing. Scissors not arriving at full forward position b. Cutter knife has misaligned	a. Remove ribbon from scissors. Determine if safety device is working properly. b. Adjust cutter anvil guide (see pg. 11)
No Ribbon Feed	Ribbon drive motor operates, but no ribbon is driven out	a. Ribbon drive pressure wheel is not in contact with ribbon drive wheel. b. Chain sprocket loose on drive wheel	a. Refer to pg. 18 to check if ribbon is threaded correctly b. Check sprocket, tighten set screw
	Ribbon jams behind anvil	a. Interference with ribbon feed b. Misalignment of scissors c. Knife not returning to home position d. Return spring broken or not assembled e. LS-3 (Bottom switch) is releasing first as scissors leave home position	a. Clear ribbon path of debris b. Scissor adjustment (see pg. 11) c. Reset anvil position (see pg. 11) d. Check spring, replace if necessary e. Adjust LS_3 arm out so that both top (LS-2) & bottom (LS-3) switches activate in close unison
	Ribbon motor doesn't run.	a. LS-2 (Top switch) is out of adjustment b. Time Delay Relay is defective	a. Adjust LS-2 as in e) above b. Replace Time Delay Relay

SECTION V: Troubleshooting

SOLUTIONS MATRIX (cont)

	CONDITION	CAUSE	REMEDY
Machine recycles constantly when holding in trigger switch		a. Control Relay is defective	a. Replace Control Relay
Machine will not cycle	Ribbon feeds out constantly	a. LS-3 (Bottom switch) is not activating on scissor return	a. Adjust LS-3 arm outward so that LS-2 and LS-3 activate in close unison
	Main drive motor M-1 runs	a. Trigger switch (LS-1) out of adjustment	a. Adjust to hear a click upon releasing of trigger
	Depressing trigger has no effect	a. Trigger switch (LS-1) out of alignment b. Safety switch (LS-1) not closed c. Fuse blown	a. Adjust to hear a click upon closing trigger b. Adjust to hear a click upon closing cover c. Check fuse, replace if necessary
Tie is not tight		a. Ribbon length is too short	a. Increase the ribbon length (see pg. 22-23)

SECTION VI: Parts List

Item No.	Part No.	Description	Qty.
5	56715	Screw - Button Head Cap 1/4-20 x .500	1
10	505B184	Stop - Upper	1
15	505R182	Hinged Cover	1
20	M001050	Insulator - Switch	1
25	56501	Nut - Hex 4-40	2
30	56704	Screw - Phillips Head 1/4-20 x .500	4
	P001450	Lockwasher - Internal Tooth No. .250	4
35	506358	Capacitor (7.5 mfd)	1
37	56913	Rubber Cover for Capacitor	1
40	16932	Clamp - Metal Capacitor	1
45	56501	Nut - Hex 4-40	2
55	56755	Screw - Pan Head Phillips 10-24 x .500	9
60	M022050	Fixed Cover - Rear	1
65	P001220	Screw - Pan Head Phillips 8-32 x .375	4
70	56823	Axial Fan	1
75	56824	Fan Guard	1
80	56903	Miniature Lamp	1
85	56902	Lamp Holder	1
95	56500	10-32 Kepnet Hex Nut	1
100	P001460	#4 Internal Tooth Lockwasher	2
110	P004364	4-40 x 7/8 Phillips Pan Head Screw	2
115	P004364	4-40 x 7/8 Phillips Pan Head Screw	2
120	P001460	#4 Internal Tooth Lockwasher	2
125	M001200	Switch Spacer	1
130	P001570	Micro Switch	1
135	505B183	Hinge	1
140	506336	10-32 x 3/8 Pan Head Slotted Screw	4
145	56500	10-32 Kepnet Hex Nut	4
150	P001070	Nut - Hex 8-32	1
155	M030000	L Bracket	1
160	506336	10-32 x 3/8 Pan Head Slotted Screw	5
165	P001270	Screw - Pan Head Phillips 8-32 x .500	1
170	P001470	#8 Internal Tooth Lockwasher	1
175	P001580	Circuit Breaker, 115v, 2 amp	1
195	14432	Black Thumb Screw	2
	56703	1/4 20 x 1 1/2 Socket Head Cap Screw	2
210	56925	Rocker Switch	1
220	56905	Control Knob	1

SECTION VI: Parts List

Item No.	Part No.	Description	Qty.
225	56908	Fuse Holder	1
230	18034	6/32 x 1/2 Flat Head Screw	2
233	M001040	Counter Seal	1
235	P001760	Counter	1
240	505C225	Front Cover	1
245	16961	6-32 Hex Nut	2
265	P001080	1/4-20 Hex Nut	4
270	505D142	Electrical Chassis	1
275	505B132	Time Delay Relay	1
280	569340	Timer Socket	1
285	506347	Din Rail	1
290	56501	4-40 Hex Nut	1
295	P001460	#4 Lock Washer	1
300	56403	Strain Relief	1
305	56930	8-32 x 3/8 Phillips Sheet Metal Screw	6
310	A301010	Power Cord Assembly	1
315	56960	4-40 x 5/8 Screw	1
325	506336	10-32 x 3/8 Slotted Pan Head Screw	2
330	505C190	Back Cover	1
335	56933	Socket Relay	3
340	56922	Power Relay	3
345	56825	3/8-16 x 2 Shoulder Bolt	1
350	56929	Spring	1
355	505B210	Spring Detent	1
360	M021570	Arm Scissor Actuator	1
365	A202150	Arm Actuator Assembly	1
370	505B114	1/2-13 x 1 1/4 Shoulder Bolt 1/2 Dia.	1
375	56801	# 4 Flat Washer	3
380	56785	5-40 x 3/8 Socket Head Cap screw	1
385	A202120	Rod Scissor Actuator Arm Assembly	1
390	P004150	1/4-28 x 1 Socket Head Cap Screw	1
395	56805	1/4 Split Lock Washer	1
400	505B129	Space - Cutter Cam	1
405	P004858	4-40 x 1 1/4 Phillips Head Screw	2
410	P001460	# 4 Lock Washer	2
415	M001050	Switch Insulator	2
420	M001200	Switch Spacer	1
425	P001570	Micro Switch	2
435	P004706	3/8-16 x 1 Socket Head Cap Screw	4

SECTION VI: Parts List

Item No.	Part No.	Description	Qty.
440	P004715	3/8 Split Washer	4
445	505D173	Frame	1
450	56805	Lock Washer - Internal Tooth No. 250	1
455	1160	1/4-20 x 2 Hex Head Screw	1
460	56802	# 10 Flat Washer	4
465	506337	# 10 Split Lock Washer	4
470	P003420	10-32 x 1 Socket Head Cap Screw	4
475	56738	Screw - Flat Head Socket Cap 10-24 x .500	4
485	M030012	Spacer	2
490	505B155	Guard Ribbon Drive	1
495	56802	# 10 Flat Washer	2
500	P001431	10-24 x 1/2 Flat Hex Socket Screw	2
505	56704	1/4-20 x 1/2 Phillips Pan Head	2
510	A102022	Small Brake Assembly	1
	A102021	Large Brake Assembly	1
	A102020	Special Brake	1
515	505C166	Right Foot	1
516	56708	1/4-20 x 3/4 Socket Head Cap Screw	4
517	505B163	Leg Frame	4
518	505C164	Back Mounting Plate	1
519	505C165	Left Foot	1
520	P001540	Rubber Foot	4
525	56710	10-24 x 5/8 Screw	4
530	P001431	10-24 x 1/2 Flat Hex Socket Screw	2
535	56802	# 10 Flat Washer	2
540	M021402	Chain Cover	1
545	M026419	Spacer	2
550	A401650	# 35 Chain 13 1/2" Long	1
555	M021601	Sprocket	1
560	P003540	Screw - Shoulder Bolt 10-24 x .250 Dia x .375Lg	1
570	505B112	5/16 x 1/4 Shoulder Bolt	1
575	M021411	Sprocket	1
580	56715	1/4-20 x 1/2 Hex Button Head Screw	1
595	56724	1/4-20 x 3/4 Hex Flat Head Screw	2
600	505B177	Trigger Spring	1
605	505B013	Trigger Arm	1
610	56715	1/4-20 x 1/2 Hex Button Head Screw	2
615	P001450	1/4 Lock Washer - Internal Tooth	2
625	M022065	Shim Spacer	2

SECTION VI: Parts List

Item No.	Part No.	Description	Qty.
630	56001	Bearing	2
635	56723	1/4-20 5/16 Shoulder Bolt	2
640	505B202	Spacer	2
645	505C105	Cam Scissor Guide	1
650	A202180	Scissor Arm Left Assembly	1
655	505B010	Drag Link	1
670	A202170	Scissor Arm Right Assembly	1
675	P001470	#8 Lock Washer- Internal Tooth	2
680	P001220	8-32 x 3/8 Phillips Head Screw	2
685		CHUTES	
	505B215	1 1/2 " Chute Optional	1
	505B216	2 " Chute Optional	1
	505B217	2 1/2 " Chute Optional	1
	505C218	3 " Chute Optional	1
	505C219	3 1/2 " Chute Optional	1
	505C220	4 " Chute Optional	1
690	M021040	Support Block	1
695	505C103	Scissor Arm Cover	1
700	A202110	Ribbon Lever Assembly	1
705	56712	6-32 x 3/4 Socket Head Cap Screw	4
710	56602	O' Ring	8
715	505M001	Spacer	2
720	56906	Magnet	2
725	506338	10-24 x 7/8 Socket Head Cap Screw	2
730	506337	# 10 Split Washer	4
735	56719	10-24 x 3/4 Hex Socket Head Cap Screw	4
740	505B176	Cam Actuator Bracket	1
745	505B144	Slide Return Plate	1
750	505B180	Lower Stop Plate	1
753	M001880	Cone	1
755	M021369	Twister Shaft	1
760	A202090	Twister Support Assembly	1
765	505B117	Sprocket	1
770	56501	4-40 Hex Nut	2
775	505B122	Twister Chain Guard	1
780	P001570	Micro Switch	1
785	M001200	Insulation Spacer-Switch	1
790	A401640	#25 Chain - 16 1/2 Long	1
795	56802	# 10 Flat Washer	3

SECTION VI: Parts List

Item No.	Part No.	Description	Qty.
800	P001430	Screw - Socket Head Cap 10-24 x 1/2	3
805	M001050	Insulation-Switch	1
810	P004362	4-40x1 Phillips Pan Head	2
815	56960	4-40x5/8 Screw	2
820	56801	# 4 Flat Washer	2
825	56900	Nylon Cable Clamp	2
830	505B019	Support- Twister Drive	2
835	506337	# 10 Split Lock Washer	4
840	56705	10-24 x 1 1/2 Screw	4
845	56914	.005 Shim	4
850	P001020	Bearing - Radial Ball R42RS	2
855	A001741	Twister Sprocket	1
880	56726	1/4-20 Shoulder Bolt 5/16 Dia.	1
885	505B129	Spacer - Cutter	1
890	505B130	Link Cutter Actuator	1
905	M001492	Pinion Shaft Assembly	1
910	P001080	1/4-20 Hex Nut	1
915	56711	1/4-20 x 1 Cup Point Set Screw	1
920	M001484	Spring Tension	1
940	505B133	Connector - Cutter Link	1
945	A202130	Bell Crank Assembly	1
950	56002	Bearing	1
955	P001180	Snap Ring	1
960	56100	3/8-16 x 3/4 Shoulder Bolt 1/2 Dia.	1
965	A202040	Support - Cutter Cam Assembly	1
970	56729	10-24 x 1/2 Flat Hex Socket Screw	3
975	56729	10-24 x 1/2 Flat Hex Socket Screw	3
980	505C127	Gear Segment	1
985	505B012M	Cam Actuator	1
990	506337	# 10 Split Washer	3
995	56506	10-24 Hex Nut	3
1000	56959	Bodine Motor	1
1005	56503	1/4-28 Hex Nut	1
1010	56805	1/4 Split Washer	1
1015	A302050	Ribbon Feed Wheel Assembly	1
1020	56719	10-24 x 3/4 Hex Socket Head Screw	2
1025	506337	# 10 Split Washer	2
1030	505B168	Cover	1

SECTION VI: Parts List

Item No.	Part No.	Description	Qty.
1035	505B169	Knife Anvil	1
1040	56719	10-24 x 3/4 Hex Socket Head Screw	2
1045	506337	# 10 Split Washer	2
1050	505B153	Ribbon Cutoff Knife	1
1055	A302030	Cutter Support Block Assembly	1
1060	505B158	Sprocket	1
1065	56803	1/4 Dia. Washer	1
1070	506352	Nylon Spacer	1
1080	56810	1/4 Flat Washer	1
1090	1113	Wingnut	1
1095	506337	# 10 Split Lock Washer	2
1100	506338	10-24 x 7/8 Socket Head Cap Screw	2
1105	A302060	Pressure Wheel Assembly	1
1110	505B113	10-24 x 1/4 Dia. X 5/8 lg. Shoulder Bolt	1
1115	505B170	Cam-Pressure Wheel	1
1120	56606	Retaining Ring	1
1125	505B113	10-24 x 1/4 Dia. X 5/8 lg. Shoulder Bolt	1
1130	505B150	Support Idler	1
1135	56940	Spring Tension	1
1140	505B152	Ribbon Guide Flat Long	1
1145	506338	10-24 x 7/8 Socket Head Cap Screw	2
1150	506337	# 10 Split Lock Washer	2
1155	505B151	Ribbon Guide Flat Short	1
1160	505C027-1	Motor 110 Volt	1
1165	M030010	Stand Off	4
1170	14432	Black Thumb Screw	1
1175	56803	1/4 Dia. Washer	1
1180	505B119	Spacer Ribbon	1
1190	505D157	Ribbon Drive Slide Plate	1
1195	P001470	# 8 Internal Tooth Lock Washer	4
1200	P001270	8-32 x 1/2 Phillips Head Screw	4
1205	505B159	Sprocket Ribbon Drive	1
1210	A401645	# 25 Chain 12-1/2" Long	1
1220	56006	Bearing	1
1225	505B212-4	Twister	1
1230	P001020	Bearing	1
1235	56005	Bearing	1
1255	P001030	Bearing	2

ASSEMBLIES

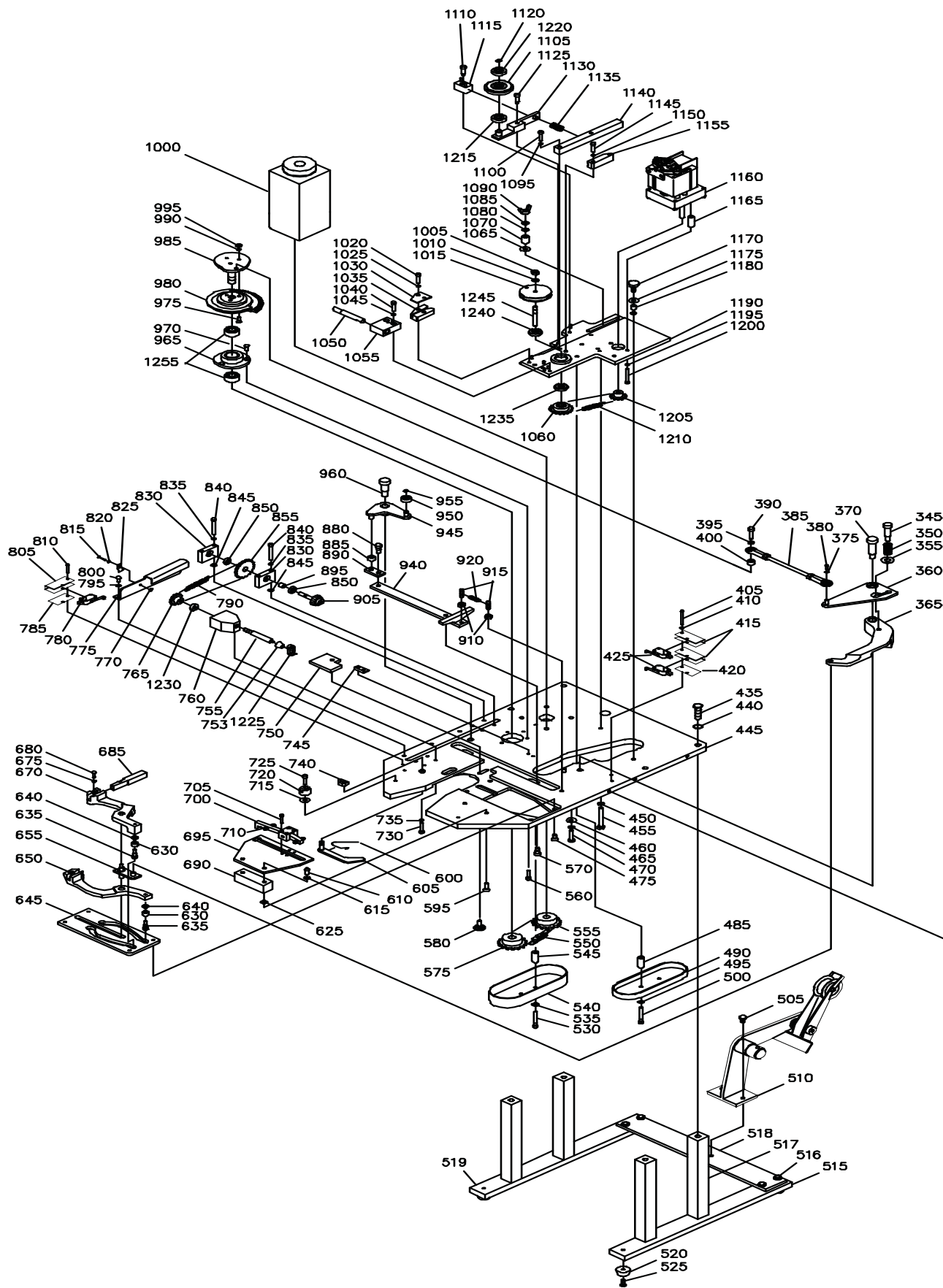
Part No.	Description	Qty.
A202040	Support Cam Cutter Assembly	
505B126	Support Cam Cutter	1
P001030	Bearing	2
A202120	Rod Scissor Actuator Assembly	
505B230	Rod Scissor Actuator	1
56000	Rod End Bearing (Right)	1
56009	Rod End Bearing (Left)	1
56805	Split Washer 1/4	2
56503	Hex Nut 1/4-28 RH Thread	1
P001095	Hex Nut 1/4-28 LH Thread	1
505B019	Support Twister Drive Assembly	
505B121	Support Twister Drive	1
P001020	Bearing	1
A001741	Sprocket, Twister Drive	
M001741	Modified Sprocket	1
M001742	Sprocket Clamp	1
P002400	10-32 x 5/8 Socket Head Cap Screw	2
A202090	Twister Support Assembly	
505B120	Support Block	1
P001020	Bearing	1
56205	Bushing	1
A202180	Scissor Arm Assembly (Left)	
505C101	Scissor Arm (Left)	1
56202	Bushing	1
505B202	Washer Spacer	1
56001	Bearing	1
56723	Shoulder Bolt	1
A202170	Scissor Arm Assembly (Right)	
505C102	Scissor Arm (Right)	1
56202	Bushing	1
505B202	Washer Spacer	1
56001	Bearing	1
56723	Shoulder Bolt	1
A202110	Ribbon Forming Lever Arm Assembly	
505B221	Lever Forming Lever	1
505B107	Support	1
56912	Roll Pin	2
56939	Dowel Pin	1
56602	O' Ring	8

ASSEMBLIES

Part No.	Description	Qty.
A202150	Arm Actuator Assembly	
505C209	Actuator Scissor Arm	1
56200	Bushing	1
56201	Bushing	1
A202060	Scissor Arm Actuator Assembly	
M021570	Scissor Arm Assembly	1
M021540	Pin	1
A302070	Plate, Ribbon Feed Assembly	
505D157	Plate, Mounting Ribbon Guide	1
505B201	Receiver Ribbon Drive Wheel	1
56005	Bearing	2
A302060	Ribbon Idler Wheel Assembly	
505B198	Wheel Pressure Ribbon Drive	1
56006	Bearing	1
A302020	Lever Assembly Ribbon Wheel	
505B149	Shaft, Ribbon Idler	1
505B150	Support Idler	1
A302080	Idler Lock Out Cam Assembly	
505B170	Cam, Pressure Wheel	1
56910	1/8 x 1 Roll Pin	2
A301010	Power Cord Assembly	
P001610	Power Cord, Black	1
P001410	Connector, Quick Disconnect	1
P001420	Terminal Ring Tongue	1
P001670	Terminal , Male	1
P001690	Connector Receptacle	1
56403	Strain Relief Connector	1
A401675	Electrical Harness Assembly	
506340	Timer Socket	1
56933	Socket Relay	3
56931	Metal Jumpers	4
505B132	Time Delay Relay	1
56952	Fork Terminal, Pink	22
P003980	Fork Terminal, Blue	4
56922	Relay, Power	3
56822	Relay Clips	3
P001890	Connector, Plug	3
P001690	Connector, Receptacle Male	3
P003920	Receptacle, With Ears	1
506347	Din Rail	1

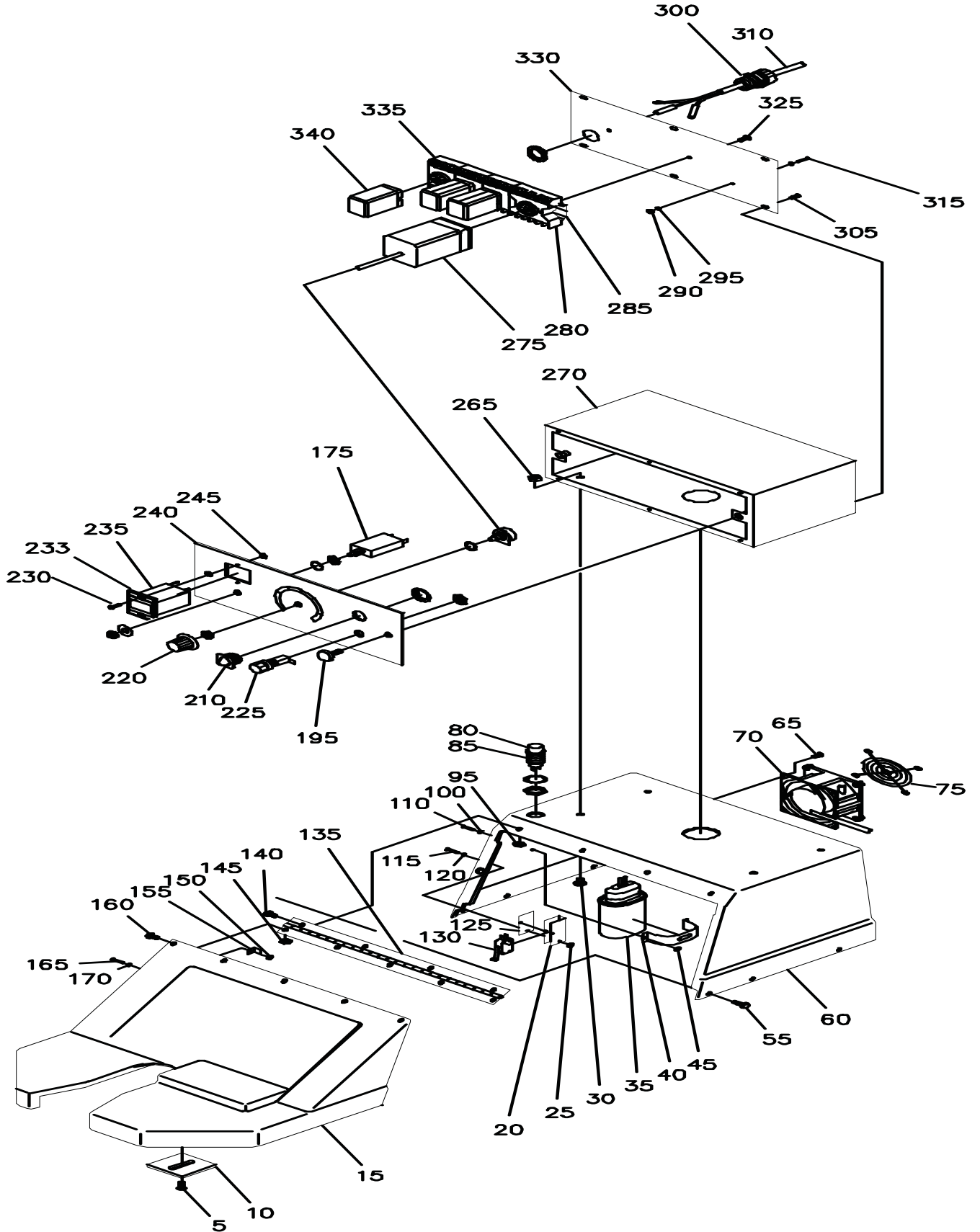
APPENDIX A

EXPLOSION CHART



APPENDIX A

CASE & COVER



APPENDIX B

ELECTRICAL SYSTEM FUNCTIONS

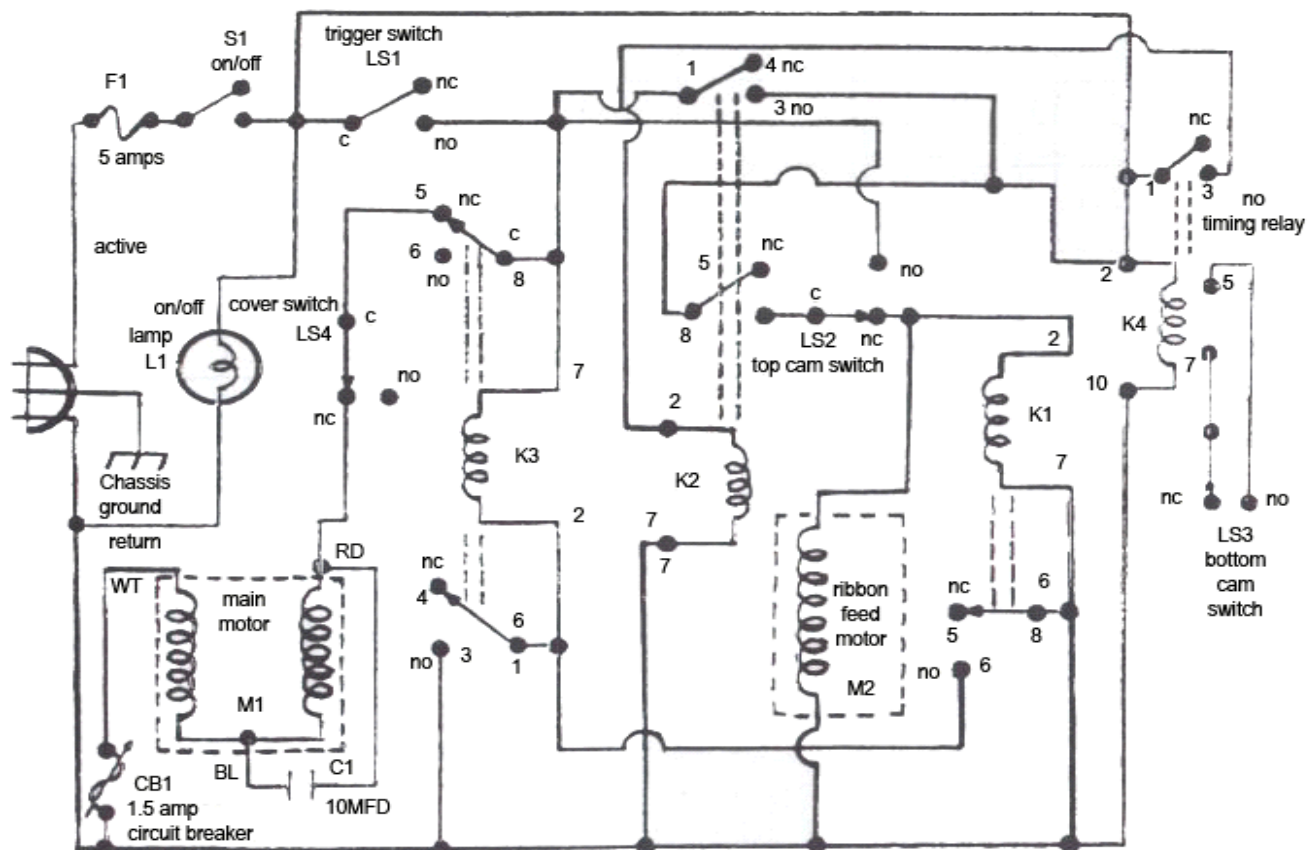
Schematic illustrates condition of all switches when the XL2 is at rest (in between tying cycles) with cover closed (LS4 closed).

When the product to be tied is inserted into the tying area, Trigger Switch (LS1) closes and activates the main motor and cam. As the main motor and cam begin to turn, the cam closes top and bottom cam switches (LS2 & LS3) activating relays (K2 & K4).

Then, when the main motor and cam finish one complete rotation, the cam switches are reopened causing three effects:

1. Relays (K1 & K#) are activated, disabling the main motor and cam.
2. Timing relay (K4) begin its delay cycle.
3. The ribbon feed motor begins to turn.

When timing relay (K4) times out (depending on the setting of the "Tying adjustment Dial"), all relays deactivate, the ribbon feed motor shuts off, and the unit is once again at rest.



APPENDIX B

ELECTRICAL SYSTEM PARTS LIST

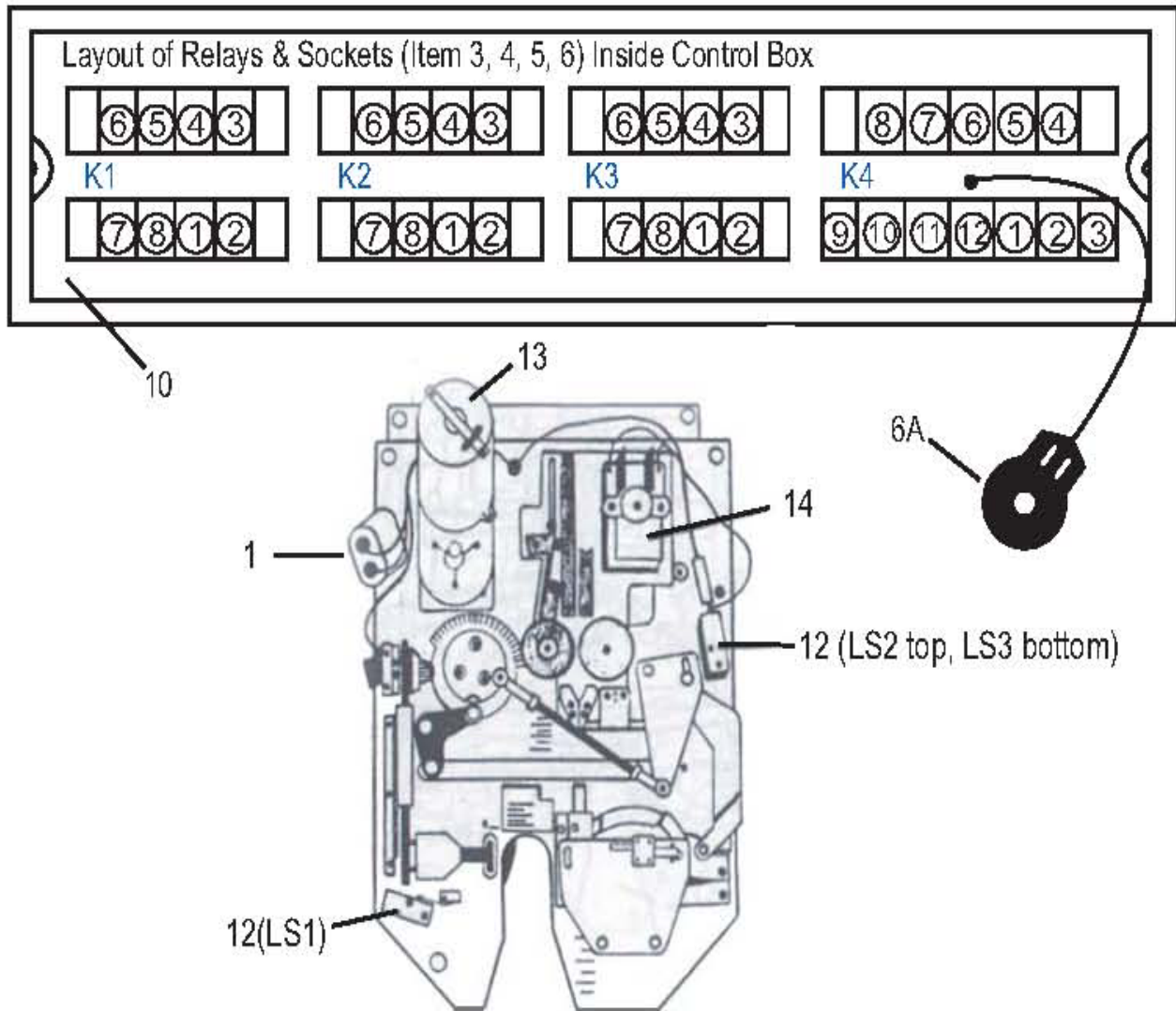
<u>INDEX #</u>	<u>PART#</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	50641	Capacitor	1
	56913	Capacitor Cover*	1
	16932	Capacitor Clamp*	1
2	505B222	Track, Mounting*	1
3	56933	Socket, Relay #RS-8	3
4	56922	Relay (115V) GV-DPDT-115A (K1, K2, K3)	3
	56822	Relay Clips*	1
5	506340	Socket, Timer	1
6	505B132	Relay, Time Delay (115V)	1
	56403	Strain Relief*	1
6A	Part of 6	Potentiometer for Time Delay Relay (R1)	1
	56905	Knob #409-D2-K1*	1
7	56908	Fuse holder #342028*	1
	56909	Fuse (15V) AGC-5* (F1)	1
	16912	A.C. Cord*	1
9	56924	On/Off Switch and Lamp (S1 and L1)*	1
	56970	Optional Food Activated Switch*	1
10	505D142	Control Box Chassis	1
	505C190	Cover, Back*	1
	505C225	Cover, Front*	1
11	16953	Circuit Breaker 1.5 Amp* (CB1)	1
12	16907	Microswitch (LS1, LS2, LS3, LS4)	1
13	56926	Main Motor (M1)	1
	505B172	Main Motor Sprocket	1
	56928	Transformer #GSD-350 (230V) Options	2
14	505C027-1	Ribbon Feed Motor (m2)	1
	505B158	Sprocket Ribbon Feed Wheel	1
	505B228	Sprocket	1

*Denotes not shown.

LS4 is located on left side of enclosure, in front & under enclosure lid.

APPENDIX B

ELECTRICAL SYSTEM DETAILS



XL2 SPARE PARTS KIT:**PART# K001021**

<u>PART#</u>	<u>DESCRIPTION</u>	<u>QTY</u>
56903	Miniature Lamp, 120v	1
56909	5 Amp Fuse	2
56922	Power Relay	2
P001570	Micro Switch	4
M021364	Fixed Chute - Wide Mouth	1
M001492	Pinion Shaft Assembly	1
505C127	Gear Segment - Twister Drive	1
505B153	Knife - Ribbon Cutoff	1
M001460	Spring - Tension	1
505B177	Spring - Trigger	1
56602	O' Ring - Ribbon Forming Lever	16

REPLACEMENT CHAINS

<u>ITEM#</u>	<u>PART#</u>	<u>DESCRIPTION</u>	<u>QTY</u>
25	A401640	16.5" Chain Assembly (for Twister Drive Assembly)	1
25	A401645	12.5" Chain (for Sliding Plate Assembly)	1
25	A401630	17.5" Chain Assembly (for Twister Support Assembly: 5 twists only)	1
35	A401650	13.5" Chain Assembly (for Sprocket Cam Assembly)	1

PLAS-TIES

OPERATING MANUAL FOR XL2 MACHINES



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