

BUNN

The Keep it all Together People

MODEL STM1016 TYING MACHINE OPERATOR MANUAL



The Original Package Tying Machine

B. H. Bunn Company

2730 Drane Field Rd., Lakeland, Florida 33811-1395

Telephone: 863/647-1555 Toll Free: 800/222-BUNN

Fax: 863/686-BUNN Website: www.bunntyco.com

Notice

Do not attempt to operate this Equipment before reading the operation instructions and performing the **Before Operation Checks** paragraph in section 3 of this manual.

OPERATOR SAFETY REMINDERS

The National Safety Council reminds us that most accidents are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason, you as a careful operator, are the best insurance against an accident.

Regardless of the care used in the design and construction of any type of equipment there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

- NEVER ATTEMPT TO THREAD, CLEAN, OIL OR ADJUST A MACHINE WHILE MOTOR IS OPERATING OR MACHINE IS IN MOTION.
- NEVER OPERATE MACHINE WITH ANY GUARD OR PANEL REMOVED AND KEEP HANDS AWAY FROM INSIDE OF GUARD TO AVOID BEING STRUCK BY THE TWINE ARM.
- DO NOT REMOVE GROUNDING PRONG FROM THE POWER CORD.

Tying Machine Operator Manual

Foreword

This manual contains instructions for installation, operation, preventative maintenance, troubleshooting and repair parts identification for your tying machine manufactured by the B. H. Bunn Company, Lakeland, Florida. Proper use of the manual should ensure safe and efficient operation and maintenance of the tying machine. Because of the increasing staff of Service Representatives, B. H. Bunn Company can now

offer a Maintenance Contract. Contact your local service representative for full detail of the maintenance contract, who is capable of rendering factory approved service, or the B. H. Bunn Company for further information.

This manual may not be reprinted or reproduced, either in whole or in part without written permission of the B. H. Bunn Company.

Contents

Section I – Introduction	Page	Section V – Troubleshooting	Page
Purpose of Tying Machine	2	The Perfect Knot	11
General Description	2	Table of Troubleshooting Information	12,13
Principles of Operation	2,3		
Basic Types of Different Wraps	4	Section VI – Parts List	
Section II – Preparation for Use		Parts List Information	14
Uncrating Instructions	5	Main Table Assembly	15
Power Requirements	5	Knotter Head Assembly	16
Tying Materials	5	Stringholder and Knife Trap Assembly	17
Threading Procedures	6	Main Cam Assembly	18
Section III – Operation		Main Table Support & Kick Out Assembly	19
Before Operation Checks	7	Main Shaft, Main Gear	20
Tying Size Limitations	7	Main Clutch Assembly	21
One-Wrap Operation	7	Lower Bearing, Clutch fork	22
After Operation Procedures	7	Speed Reducer Assembly	23
Section IV – Maintenance		Twine Arm Assembly	24
Lubrication Points	8,9	Electrical System	25
Maintenance	10	Twine Enclosure	26
Introduction	10	Lower Base / Trip Pedal	27
Table of Lubrication Requirements	10	Guarding & Panels	28
		Front & Rear Table Assembly	29

Section I - Introduction

Purpose of Tying Machine

The primary purpose of the tying machine is to automatically tie mail, packages, cartons, piece parts, printed matter, newspaper, laundry, produce, meats, corrugated cardboard and miscellaneous materials and products requiring a secure wrap. The tying machine ties almost everything that was previously wired, banded, taped, strapped, tied by hand in offices, factories and commercial establishments. The tying machine reduces tying time, employee effort and fatigue, reduces twine lint and waste, enables trained operators to make secure ties quickly, ties larger bundles with greater ease and efficiency and discourages tampering because the knot cannot be duplicated by hand tying.

General Description

The tying machine is made of stainless steel, cast iron and high impact plastic construction. Heavy duty panels and guards completely enclose the moving parts of the tying machine to prevent accidental operator contact. However, the unique design of the tying machine still provides the operator with easy accessibility to maintenance points without the use of tools. For ease of mobility, caster wheels are used. A brake feature on each caster resists the movement of the tying machine when assigned a permanent position. The "ON-OFF" switch (used to supply electrical power) and a foot pedal (used to initiate the tying cycle) are within easy and comfortable reach of the operator. The material tying area consists of a front table, back table, and standard. A knotter head assembly, stringholder assembly, twine arm and drive assemblies comprise the tying cycle components.

Principles of Operation

Single Wrap

With the tying machine power cord connected to an approved power source and the material to be tied properly positioned on the front table and the back table, the operator then places the "ON-OFF" switch in the "ON" position. Electrical ac power is then transferred by the switch to start the motor. The motor rotating at approximately 1725 rpm drives the pulley on the clutch via a poly-V belt thru the speed reducer assembly to a V belt mechanically coupling the pulley assembly to the motor. At this time, the tying machine is considered to be in a locked condition until the operator applies toe pressure to the foot pedal to begin the wrapping and tying cycle. Depressing the foot pedal causes the trip cable to position the bell crank and kickout assembly so the kickout wedge slides free from the clutch fork assembly. Repositioning the kickout wedge permits the lever clutch of the kickout mechanism to first pull away from the clutch kickout block on the main cam assembly and then is engaged by the clutch fork. As soon as this occurs, the clutch shaft becomes unlocked and starts to rotate which in turn drives a series of gears; main shaft, main gear and chain gear. As a result, the twine arm begins to swing around the package being tied pulling the twine from the twine cone pilot assembly, through the properly adjusted tension device and each threading guide. After the swing of the twine arm, the drawslide is positioned to allow the twine to fall directly

Section I – Introduction

Continued

Simultaneously, the twine arm is continuing its arc and the knotter body turns counter clockwise opening the jaw for the two strands of twine which are wrapped around the knotter body assembly. The strands of twine are brought through the jaws and the jaws firmly lock. The knotter body assembly then moves towards its finished position and the stripper forces the twine strands off the knotter body jaws, into the tight part of the knot. As the two strands of twine are pulled into loops from the knotter body assembly jaws, the knifetrap moves forward and cuts a fresh end of twine and pushes the previously cut end of twine from behind the stringholder button. The knotter body assembly completes its movement to the finished position and the knotter body assembly jaws open to release the loops completing the tying process.

The tied bundle is then repositioned for the next tie. It is recommended that one tie be applied and completed before the foot pedal is tripped again.

Basic Types of Different Wraps

This Model comes standard with a Single Wrap system.
No other styles are available.



Single Wrap —
The arm carries the twine
arm around once and the

Section II - Preparation For Use

Uncrating instructions

1. Carefully remove the outer crating, leaving the machine banded to the skid.
2. Carefully remove the steel strapping from the machine and then pull the tying machine away from the skid. This machine is very heavy, please use proper lifting techniques when removing from the skid. Also, if using a fork lift take extreme care as improper placement of the forks could cause damage as this would not be covered under warranty.
3. There will be a box strapped to the skid containing the front table, back table, four locking casters, the manual, spare knives and warranty card. Insert one caster into each leg of the tying machine.
4. Insert the back table into the rear mounting plate located inside the machine. Align the pin of the front table on the front table mounting plate and position next to the main table before mounting the return spring to the front table.

Note: If any problems are encountered, contact your local B. H. Bunn Company Distributor immediately. *Do Not Continue with the installation as this may void your warranty.*

Power requirements

The single-phase, 1/4 hp, 1725 rpm standard motor provided with your tying machine requires an external power source of 115 volts at 60 cycles. A standard three-prong electrical cord is provided with electric motor. If a three-prong receptacle is not available at the installation site, a three-prong adapter should be used with the electrical cord.

Tying Materials

The tying machine is adaptable to a wide range of tying materials ranging from natural fiber twines to synthetics which can replace wire and strapping in many applications. Be sure the twine or tape used is the proper type and size for the application and your Bunn machine. Each new or factory reconditioned Bunn Tying Machine is factory adjusted and set for a particular size and type of twine. Other sizes or types will require adjustments and may require internal part changes. The right Bunn Twine, tested and approved for Bunn Tying Machines, aids in maximum machine performance. Bunn Twine is of uniform size and strength, free of irregularities that cause mis-ties. It is strong and fray-resistant, with minimum linting characteristics.

A free sample folder showing actual twine samples and specifications is available through your local B. H. Bunn Company Distributor.

Conversion kits are available through your local B. H. Bunn Company Distributor when and if it ever becomes necessary to change to a different material – twine to tape or tape to twine. The twine container

Threading Procedures

Before the tying machine is shipped, it is threaded through each guide starting from the twine container to the stringholder button. To avoid threading problems in the future, you should become familiar with the threading sequence at this time.

Complete threading of the tying machine can be avoided if the end of the twine or tape being used is caught before it leaves the twine container. This is accomplished by simply tying the end of the existing

twine or tape to the starting end of the new twine or tape with a square knot.

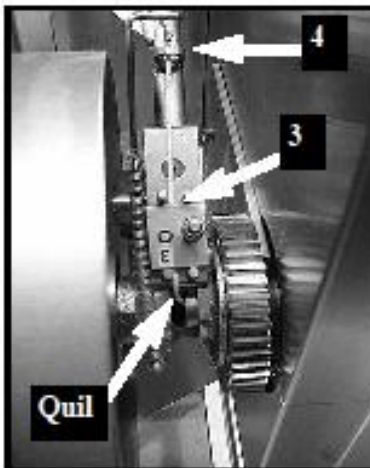
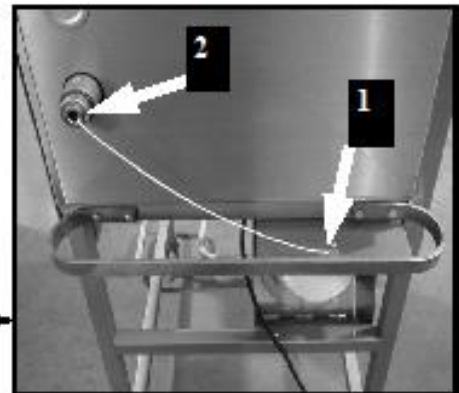
If the end of the twine or tape is not caught before it leaves twine container, the tying machine must be threaded as explained in the subsequent procedures.

It is important to observe the various openings which are identified by numbered labels affixed to the machine which the twine or tape is to be threaded.

Never thread machine while motor is operating.

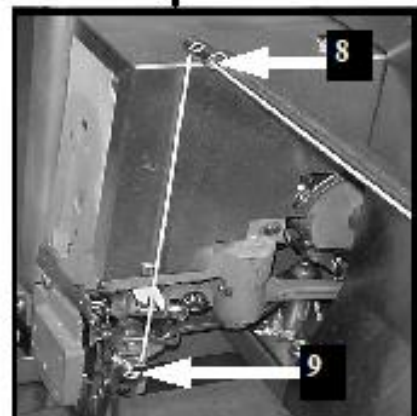
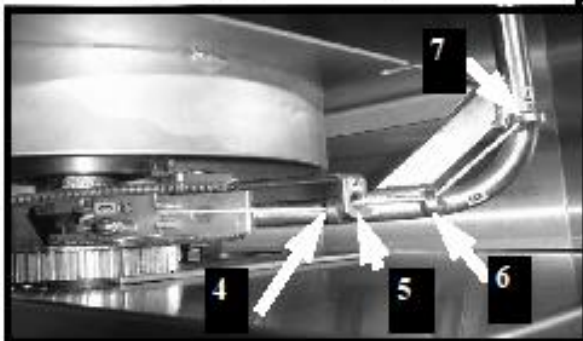


Place twine cone over cone pilot assembly. Press firmly until cone is seated on foam pad at bottom of twine container. Note: Cone pilot assembly is adjustable if cone does not seat properly. Grasping end of twine, thread through guide labeled 1 and



Retrieve the twine from quill shaft on inside of machine. Thread twine through tension device # 3 under tension spring between pins. Spring may be lifted GENTLY to facilitate this procedure. Continue to thread through eyelet # 4, end of draw-back lever #5, eyelet # 6, #7 and through the tip of the twine arm # 8.

Pull twine to right side of machine. While gently pulling the stringholder release lever, place the twine under stringholder button # 9. Pull twine up and over button shaft and release stringholder release lever. Pull the twine taut to cut off excess twine.



Section III – Operation

Before Operation Checks

1. Turn “ON-OFF” switch to the “OFF” Position.
2. Check for proper threading.
3. Check if twine or tape cone is properly seated on foam pad of twine container.
4. Check twine running tension by pulling twine from end of twine arm assembly. A smooth easy running ten sion should be felt.
5. Visually check the tying machine for any mechanical defects or missing parts.

Tying Size Limitations

The capacity graph on the Model Characteristics Sheet at the front of the manual indicates the maximum height and width of the packages that can be tied. Bunn tying machines adjust automatically to handle most packages of varying sizes and shapes that are smaller than it's maximum capacity.

Throat depth is the distance from the back of the back table to the twine line, or the maximum distance you can slide the package into the tying machine. The “throat” depth is also tabulated on the Model Characteristics Sheet.

One Wrap Operation

1. Stand in front of the tying machine at the operating position— Slightly to the right side of the front table.
2. Set the power switch to “ON” position.
3. Hold ends of the product between thumbs and forefingers of both hands and position product on tying machine table so that the left side of the product is against the left side of the front table at the split of the front and back tables.
4. Depress foot pedal holding product firmly until tying cycle is completed. The tying cycle is completed after the twine arm makes the required wrap and has tied and released the knot.

NOTE

The tying machine automatically compensates for the size and shapes and the different lengths of twine required. The tying machine also automatically applies the correct amount of tension, ties the patented slip-proof and tamper-proof knot and then cuts the twine and releases.

5. Remove package from tying machine.
6. Repeat steps 3 through 5 above for each package to be tied.
7. After all packages have been tied, set the “ON-OFF” switch to “OFF” position.

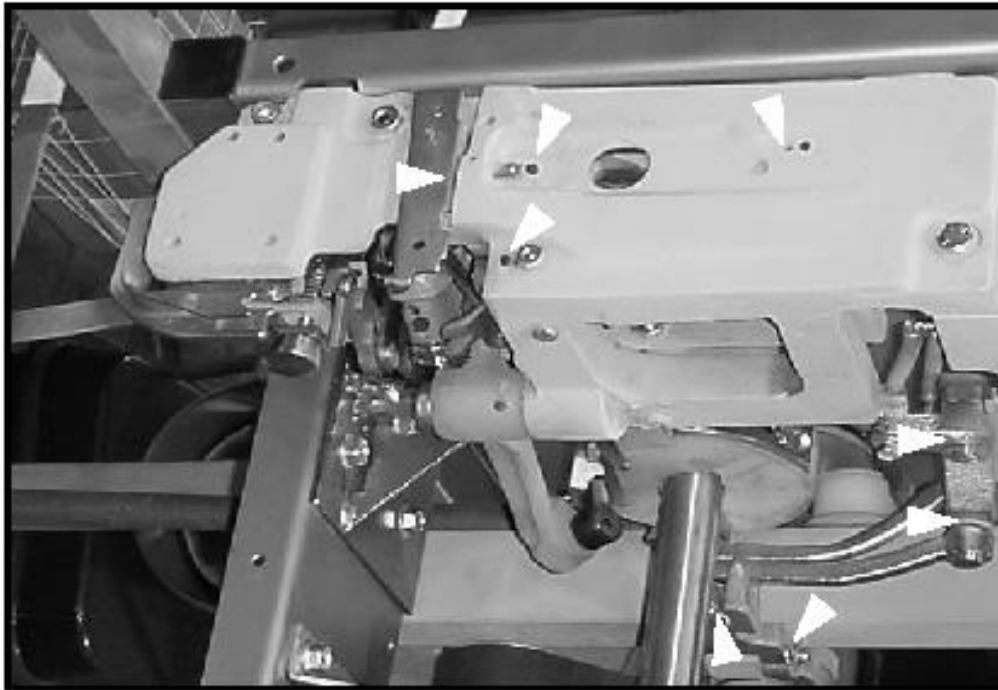
After Operation Procedures

1. Check supply of twine or tape remaining in twine container. If supply is low tie the end of the existing twine or tape to the starting end of the new twine or tape with a square knot.
2. Clean any lint that may have collected in stringholder casting between the face and stringholder casting. Small tweezers can be used for this purpose.
3. Clean the machine by using an air compressor or a damp cloth to remove excess dust and meat juice from the machine. Re move the front and back table, place in the sink to be cleaned. Do not use heavy or extreme caustic cleaning agents as this could cause severe damage to the coatings. Use a mild detergent when cleaning the tying assembly or plated parts.
Always clean the front and back table to eliminate cross contamination of products being tied.
4. Check the knife blade for any knick or dull blade. Replace if necessary.

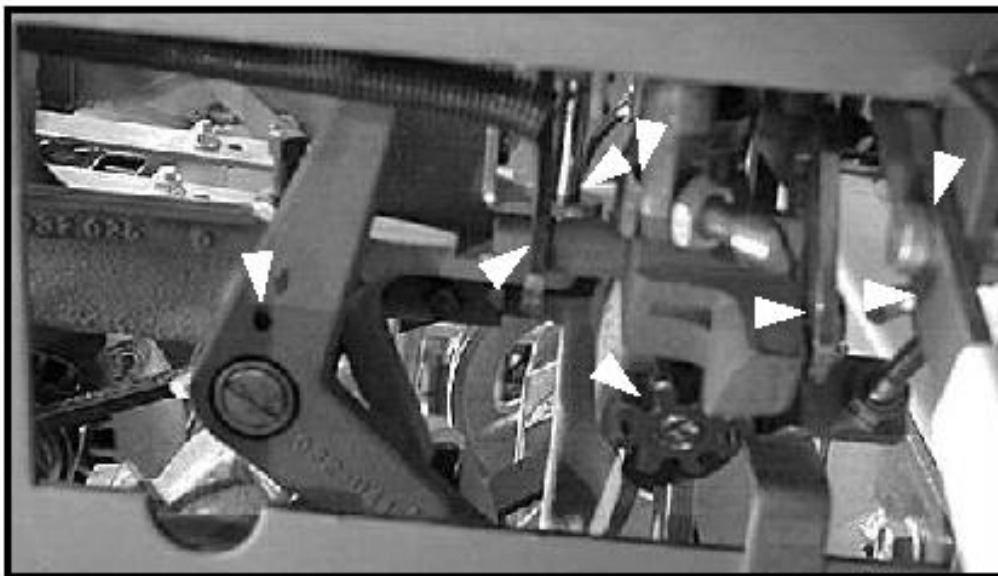
Section IV – Maintenance

Lubrication Points

ARROWS IN PHOTOS IDENTIFY OIL HOLES AND LUBRICATION POINTS
Please refer to Lubrication / Maintenance for frequency.



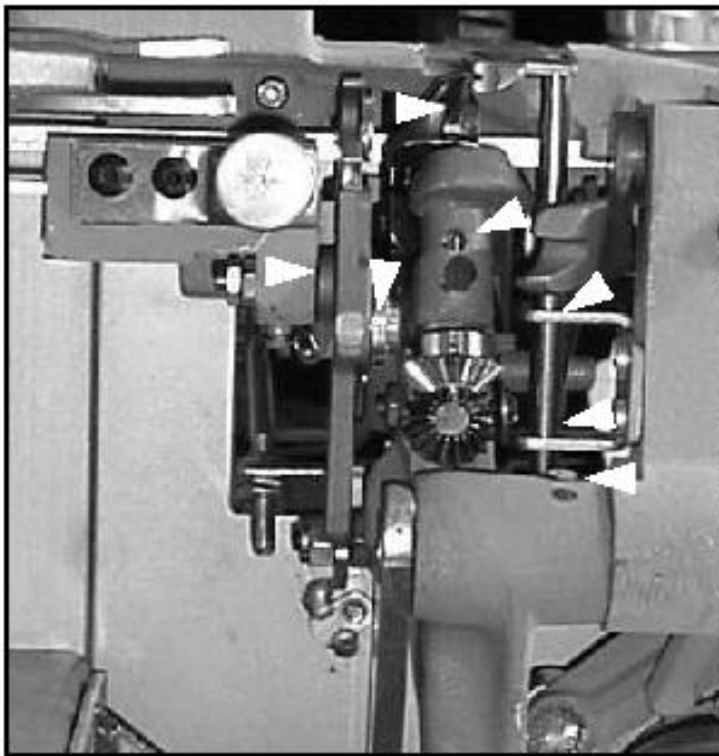
Main Table View
Main table Oil Holes,
Clutch Fork Roller,
Clutch Fork Pivot Pin,
Bell Crank Kickout



Front Frame View
Drawslide Lever,
Starwheel, Knife Trap
Cutter Lever, Knife
Trap Shoulder Screw,
Knottor Lever/ Release
Stud Contact Point,
Riser Pin Guide,
Dual Tension J Bolt

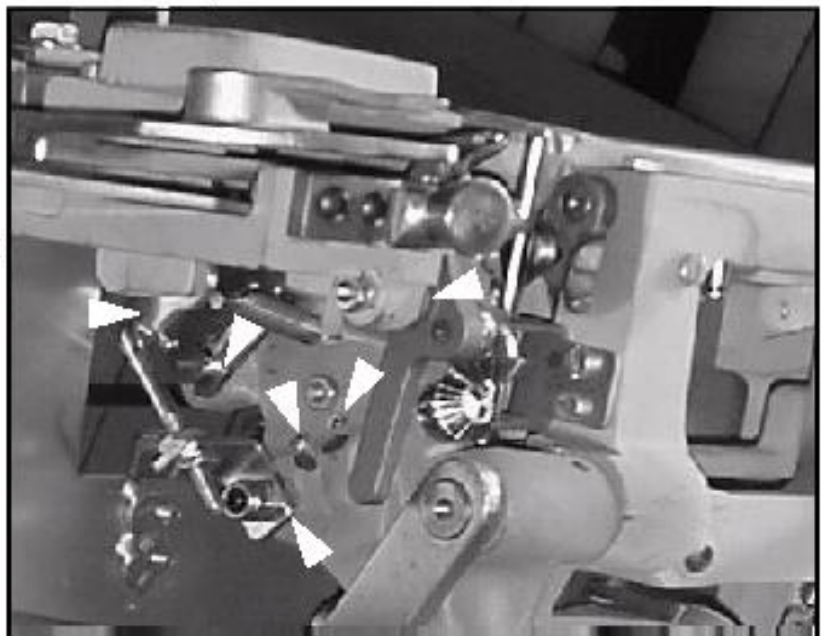
Lubrication Points Continued

ARROWS IN PHOTOS IDENTIFY OIL HOLES AND LUBRICATION POINTS
Please refer to Lubrication / Maintenance for frequency.



Knotter Head Front Oiling View

Knotter Head Side View



Section IV – Maintenance

Introduction

A good preventative maintenance program is a major step forward to assure trouble-free tying machine operation. In order to be effective, routine inspection, lubrication and adjustment schedule must be established and followed.

For tying machines subjected to normal usage which is considered to be approximately 30 hours of operation weekly, the following maintenance and lubrication schedule should be followed. Substantial deviations from normal usage should require an adjustment in the indicated frequencies.

The Lubrication Requirement has frequencies of 30 and 90 hours. The following mechanical components should be checked daily: Stringholder button holes for lint or twine buildup, knife condition, loose hardware and broken or weak knotter flat springs. The twine running tension should be checked on a monthly basis.

Any abnormal noises or loose components should be inspected and corrected. Power cord should be checked for fraying and the motor inspected for excessive lint or dirt.

Direct spraying with caustic chemicals will void warranties

LUBRICATION ITEM	Frequency	
	30 Hours	90 Hours
Note: Apply several drops of mineral oil or food grade oil after washing in addition to specified frequency. if necessary, refer to the exploded view in the parts list section of this manual for assembly part nomenclature.		
Knotter Head Assembly		
1. Oil cup (Knотter Head Pivot).	X	
2. Two oil holes (identified in red on machine).	X	
3. Between knотter lever and knотter head assembly.		X
4. Around diameter of knотter roller.		X
5. Knотter lock plunger.		X
Stringholder Assembly		
1. Between knife trap pivot and knife trap lever assembly.	X	
2. Between knife trap shoulder screw and knife trap lever assembly.	X	
3. Replace knife blade once a week	X	
Main Table Assembly		
1. Around diameter of drawslide lever assembly roller.	X	
2. Between washer and drawslide lever.		X
3. Between drawslide lever assembly and main table subassembly.	X	
4. Into three oil holes (identified in red on machine).	X	
5. Between stripper and main table subassembly so that stripper pivot pin is lubricated.	X	
NOTE: Apply a liberal coat of recommended lubricant to the following unless otherwise specified.		
Drive Assembly		
1. Knотter rack assembly cam surface and teeth.		X
2. Cam riser surface.		X
3. Knотter switch cam surface.		X
5. Apply several drops food grade oil to chain gear oil hole (identified in red on machine).	X	
6. Apply several drops of food grade oil to the two oil cups.	X	
7. Apply several drops of food grade oil to the back frame two oil holes (identified in red on machine).	X	
8. Clutch fork pivot (identified in red on machine).	X	

The Quality Knot Tells the Story

THIS IS A PERFECT KNOT

A perfect knot, like the illustration, has two long even loops extending out one side of the knot with one short and one long end, the body of the knot is tight and hard. The stripper should be on the line where the upper and lower jaws meet at the lip of the lower jaw and very little space between them as the stripper comes down to push the twine off of the knoter.



Important!

Your
BUNN PACKAGE TYING MACHINE
will tie perfect knots every time when
in proper adjustment.



B. H. Bunn Company

2730 Drane Field Road

Lakeland, FL 33811-1395

Phone 863/647-1555 Fax 863/686-BUNN

Toll Free 1-800-222-BUNN Website www.bunntyco.com

Section V Trouble Shooting


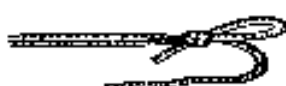

This section of the manual contains a Table of Trouble Shooting information for locating and correcting most of the troubles which develop in the tying machine.

The tying machine is generally trouble free. However, the tying machine suffers the usual wear and mis-adjustment from normal use. Careful inspection and accurate analysis of the symptoms listed in the

Table of Trouble Shooting Information will localize the trouble more quickly than any other method.

This manual cannot cover all possible troubles and deficiencies that may occur, therefore if a specific trouble is not covered herein, proceed to isolate the major component in which the trouble occurs and then isolate and correct the problem.

TABLE OF TROUBLE SHOOTING INFORMATION

TROUBLE	POSSIBLE CAUSE	CORRECTIVE ACTION
a. Tying machine will not operate with "ON-OFF" switch set to "ON" position.	Electric power cord not plugged into receptacle.	Plug electric power cord into receptacle.
	Circuit breaker tripped.	Reset circuit breaker. If circuit breaker trips again, inspect and test for short in tying machine circuit or electric power cord. Correct defect as required.
	Broken or disconnected circuit wire.	Repair or replace broken wire.
	Faulty "ON-OFF" switch.	Replace defective "ON-OFF" switch.
b. Twine (or tape) breaks frequently in stringholder button.	Improper twine (or tape).	Use proper size of twine (or tape).
	Excessive stringholder button tension.	Readjust stringholder button pressure.
c. Half or single loop on knot.	Piece of twine (or tape) wrapped around stringholder button shaft relieving tension on twine (or tape).	Depress and hold button release lever and remove bits of twine (or tape) using a small pair of tweezers. Then release the button release lever.
		
d. One loop knot that slipped out.	Excessive twine running tension.	Readjust to decrease twine running tension.
		
e. One long and one short loop.	Improper twine (or tape).	Use proper size of twine (or tape).
	One loop catching in back of knoter throat, improper knoter release adjustment.	Readjust knoter release.
		

Section V Trouble Shooting

This section of the manual contains a Table of Trouble Shooting information for locating and correcting most of the troubles which develop in the tying machine.

The tying machine is generally trouble free. However, the tying machine suffers the usual wear and mis-adjustment from normal use. Careful inspection and accurate analysis of the symptoms listed in the

Table of Trouble Shooting Information will localize the trouble more quickly than any other method.

This manual cannot cover all possible troubles and deficiencies that may occur, therefore if a specific trouble is not covered herein, proceed to isolate the major component in which the trouble occurs and then isolate and correct the problem.

TABLE OF TROUBLE SHOOTING INFORMATION

TROUBLE	POSSIBLE CAUSE	CORRECTIVE ACTION
a. Tying machine will not operate with "ON-OFF" switch set to "ON" position.	Electric power cord not plugged into receptacle.	Plug electric power cord into receptacle.
	Circuit breaker tripped.	Reset circuit breaker. If circuit breaker trips again, inspect and test for short in tying machine circuit or electric power cord. Correct defect as required.
	Broken or disconnected circuit wire.	Repair or replace broken wire.
	Faulty "ON-OFF" switch.	Replace defective "ON-OFF" switch.
b. Twine (or tape) breaks frequently in stringholder button.	Improper twine (or tape).	Use proper size of twine (or tape).
	Excessive stringholder button tension.	Readjust stringholder button pressure.
c. Half or single loop on knot.	Piece of twine (or tape) wrapped around stringholder button shaft relieving tension on twine (or tape).	Depress and hold button release lever and remove bits of twine (or tape) using a small pair of tweezers. Then release the button release lever.
d. One loop knot that slipped out.	Excessive twine running tension.	Readjust to decrease twine running tension.
e. One long and one short loop.	Improper twine (or tape).	Use proper size of twine (or tape).
	One loop catching in back of knotter throat, improper knotter release adjustment.	Readjust knotter release.

Section V Trouble Shooting

This section of the manual contains a Table of Trouble Shooting information for locating and correcting most of the troubles which develop in the tying machine.

The tying machine is generally trouble free. However, the tying machine suffers the usual wear and mis-adjustment from normal use. Careful inspection and accurate analysis of the symptoms listed in the

Table of Trouble Shooting Information will localize the trouble more quickly than any other method.

This manual cannot cover all possible troubles and deficiencies that may occur, therefore if a specific trouble is not covered herein, proceed to isolate the major component in which the trouble occurs and then isolate and correct the problem.

TABLE OF TROUBLE SHOOTING INFORMATION

TROUBLE	POSSIBLE CAUSE	CORRECTIVE ACTION
a. Tying machine will not operate with "ON-OFF" switch set to "ON" position.	Electric power cord not plugged into receptacle.	Plug electric power cord into receptacle.
	Circuit breaker tripped.	Reset circuit breaker. If circuit breaker trips again, inspect and test for short in tying machine circuit or electric power cord. Correct defect as required.
	Broken or disconnected circuit wire.	Repair or replace broken wire.
	Faulty "ON-OFF" switch.	Replace defective "ON-OFF" switch.
b. Twine (or tape) breaks frequently in stringholder button.	Improper twine (or tape).	Use proper size of twine (or tape).
	Excessive stringholder button tension.	Readjust stringholder button pressure.
c. Half or single loop on knot.	Piece of twine (or tape) wrapped around stringholder button shaft relieving tension on twine (or tape).	Depress and hold button release lever and remove bits of twine (or tape) using a small pair of tweezers. Then release the button release lever.
d. One loop knot that slipped out.	Excessive twine running tension.	Readjust to decrease twine running tension.
e. One long and one short loop.	Improper twine (or tape).	Use proper size of twine (or tape).
	One loop catching in back of knoter throat, improper knoter release adjustment.	Readjust knoter release.



Section VI – Parts List

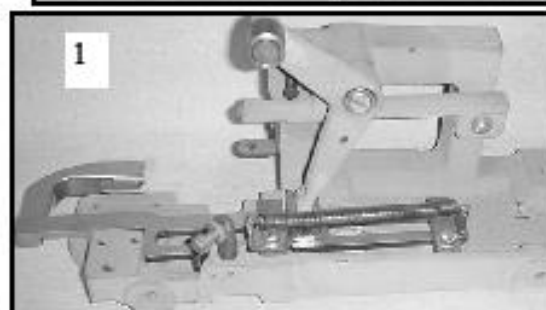
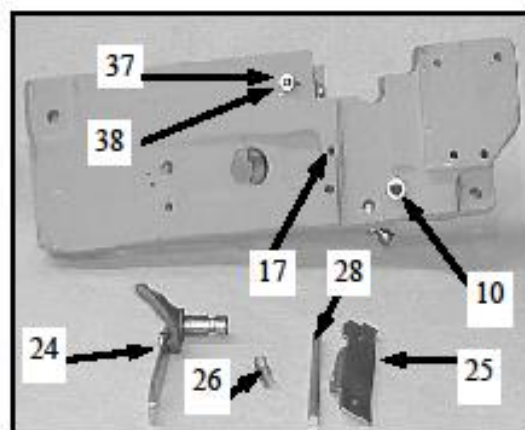
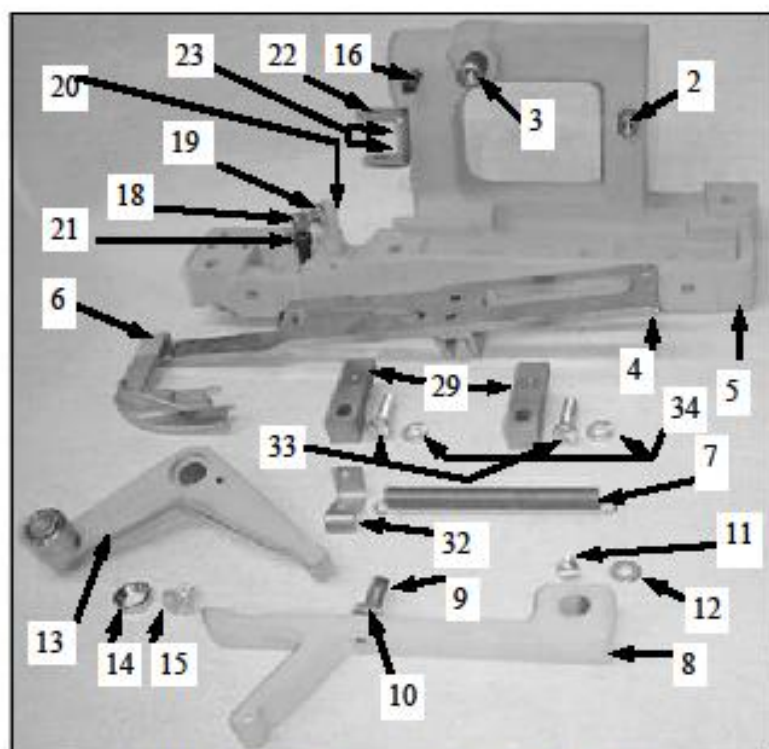
The tying machine is identified by the Model Characteristic Sheet and serial number stamped on the name plate located on the front frame of the machine.

Be sure to use both the model number and the serial number when requesting part information or when ordering replacement parts.

Using the complete equipment identifier (model number and the serial number) will ensure receipt of proper replacement part or parts.

If your tying machine is equipped with a frame extension or special modifications, please provide the information along with the complete model identifier when ordering replacement parts.

Main Table Assembly



USE SERIAL NUMBER WHEN ORDERING ALL REPLACEMENTS PARTS.

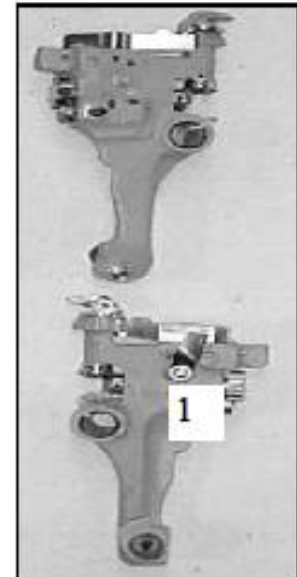
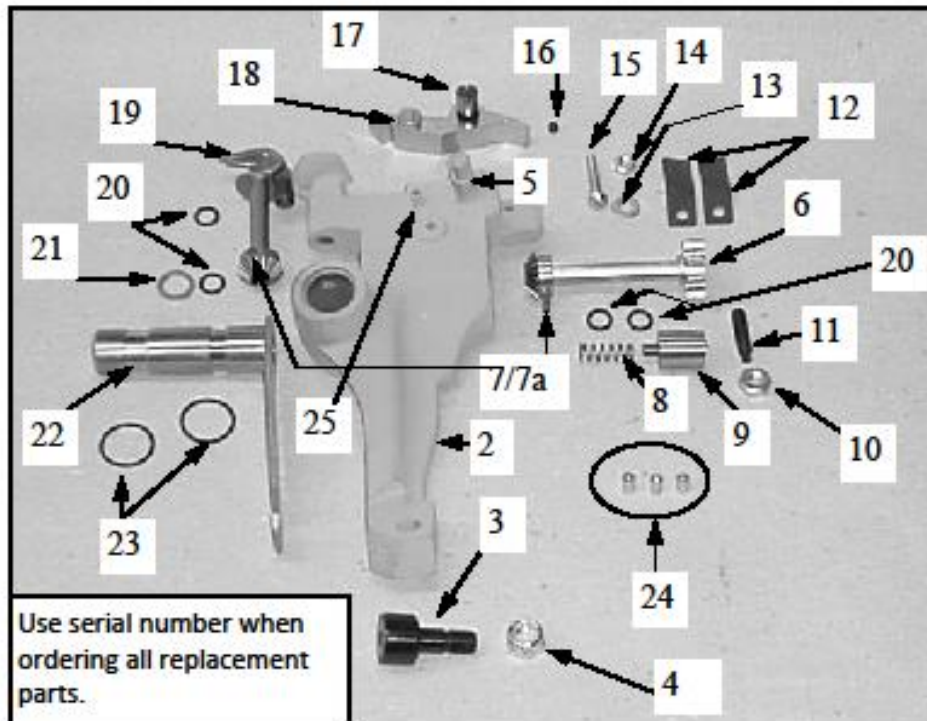
Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1	008081	Main Table Assembly	1	20	081056	Stud, Knotter Release	1
2	081014	Stud, Riser Lever	1	21	100591	Stud, Knotter Head Stop	1
3	081013	Stud, Drawslide Lever	1	22	083079	Guide, Riser Pin	1
4	100695	Pin, Drawslide Spring	1	23	100597	Screw, Pan Head, Self Tap 10-24 NC X 5/8 in	2
5**	008066	Main Table Sub Assembly	1	24*	032208	Tip Up Assembly	1
6***	045042	Drawslide Assembly	1	25*	052058	Stripper, Heavy	1
7	074059	Spring, Drawslide	1	26*	083085	Pin, Stripper Pivot	1
8	032127	Riser Lever	1	27*	074035	Spring, Stripper - Not Shown	1
9	100124	Screw, Set Square Head Dog Point 1/4-20	1	28*	083053	Pin, Riser	1
10	100150	Nut, Hex 1/4-20	2	29	070049	Drawslide Cap Assembly	2
11	100098	Screw, Round Head 10-24 NC x 3/8 in	2	30	100134	Washer, Drawslide Lever Stud (not shown)	1
12	100131	Washer, Flat 1/2 OD x 7/32 ID x 3/64 in Thick	1	31	100566	Screw, Drawslide Lever Stud (not shown)	1
13	032132	Lever, Drawslide	1	32	025288	Bracket, Drawslide Spring	1
14	100067	Washer, Drawslide Lever	1	33	100104	Screw, Drawslide Cap, 1/4-20 x 1 Fillister Head	2
15	100110	Screw, Flat Head Slotted 1/4-20 NC x 1/2 in	1	34	100135	Washer, Split lock 1/4	2
16	100596	Screw, Set Square Head Cup Point 1/4-20 x 3/4	1	35	100615	Screw, Hex Head 5/16-18 x 1 1/4 - Not Shown	1
17	100121	Screw, Set Socket Head Cup Point 8-32 x 1/4 in	1	36	100565	Screw, Socket Head Cap - Not Shown	1
18	100084	Screw, Knotter Release Adjusting	1	37	100144	Nut, 10-32 Hex	1
19	100191	Nut, Jam Hex 1/4-28 NF	1	38	100693	Screw, 10-32 Socket Set	1

* Not Part of Assembly, Order Separately.

** Sub-Assembly includes Items 2, 3, 10, 17, 18, 19, 20, 21, 22, 23, 30, 31.

*** Includes item # 4

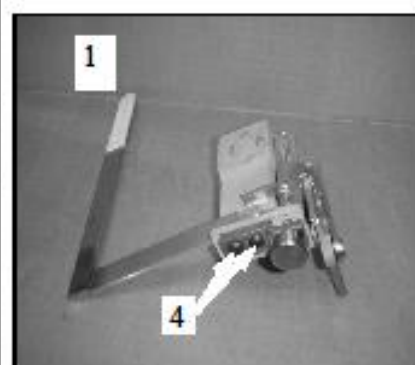
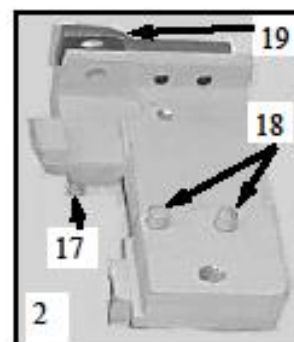
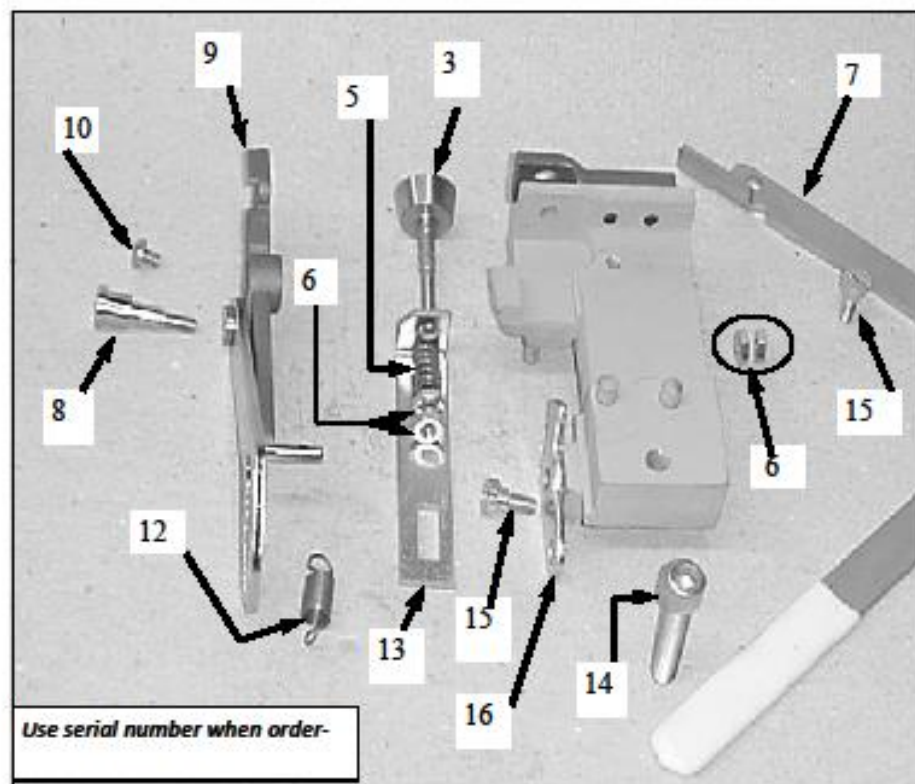
KNOTTER HEAD ASSEMBLY



Index Number	Part Number	Description	Qty	Index Number	Part Number	Description	Qty Req
1*	017106	Knotter Head Assembly	1	16	100370	Screw, 10-24 X 3/16 Soc Set Cup	1
2**	017086	Knotter Head Sub-Assembly	1	17	100009	Screw, Knotter Lever	1
3	013085	Bearing, Knotter Head Roller	1	18	032068	Lever, Knotter	1
4	100528	Nut, Knotter Head Bearing	1	19***	017103	Knotter Body & Miter Gear	1
5	081022	Stud, Tip Up Link	1	20	100575	O Ring, Knotter Body and Starwheel	4
6	020156	Starwheel & Miter Gear Assy Plated	1	21	100571	O Ring Stainless Steel Spacer	1
7	100372	Roll Pin, Miter Gears	2	22	011052	Pivot, Knotter Head (sold separately)	1
7a	N/A	Gear Miter- Not Sold Separately	2	23	100576	O Ring, Knotter Pivot	2
8	074006	Plunger Spring	1	24	100062	Cover, Ball Valve Oil Hole Gits	3
9	082003	Plunger, Knotter Lock	1	25	100483	Pin, Roll	1
10	100150	Nut, 1/4 X 20NC, Hex Jam	1	26	126102	Spacer, Knotter Pivot	1
11	100187	Screw, Set Socket Head Dog Point 1/4-20 x 1	1	27	100115	Screw, 5/16-18x1	2
12	074013	Springs, Flat	2	28	100248	Nut, 5/16-18	2
13	100131	Washer, Flat	1	29	100287	Nut, Large loc 5/16-18	1
14	100143	Nut, 10-24NC Hex Zinc	1	30	100275	Screw, 5/16-18 x 3 1/4	1
15	100092	Screw, 10-24NC X 1 Round Head	1	31	100691	Thrust Washer, Knotter Pivot	1

* This is set for Burr 16 Ply Twine. Other materials may not work properly.** Sub-Assembly includes Items 5,25. *** Includes Items 7a and 7

STRINGHOLDER AND KNIFE TRAP ASSEMBLY



Index	Part	Qty	Index	Part	Qty
1*	030179 Stringholder Assembly	1	12	074011 Spring, Knife Trap	1
2**	030142 Stringholder and Pins Sub Assembly	1	13	030084 Lever, Slide	1
3	030147 Button, Stringholder	1	14***	100565 Screw, Socket Head Cap	1
4	100489 Screw, 10-32 (not shown)	2	15	100088 Screw, Pivot	2
5	074009 Spring, Stringholder button	1	16	030083 Pivot, Dual Tension	1
6	100144 Nut, Hex 10-32	4	17	100158 Pin, Groove	1
7	032239 Lever, Button Release	1	18	100569 Pin, Groove	2
8	100730 Screw, Knife Trap Pivot	1	19	030164 Face, Heavy Stringholder	1
9	032159 Knife Trap & Lever Assembly	1	20***	030031 Angle and Link Assembly (not shown)	1
10	100090 Screw, Binder Head 8-32 x 1/4	1			
11***	021009 Package of 10 Knives— (not shown)	1			

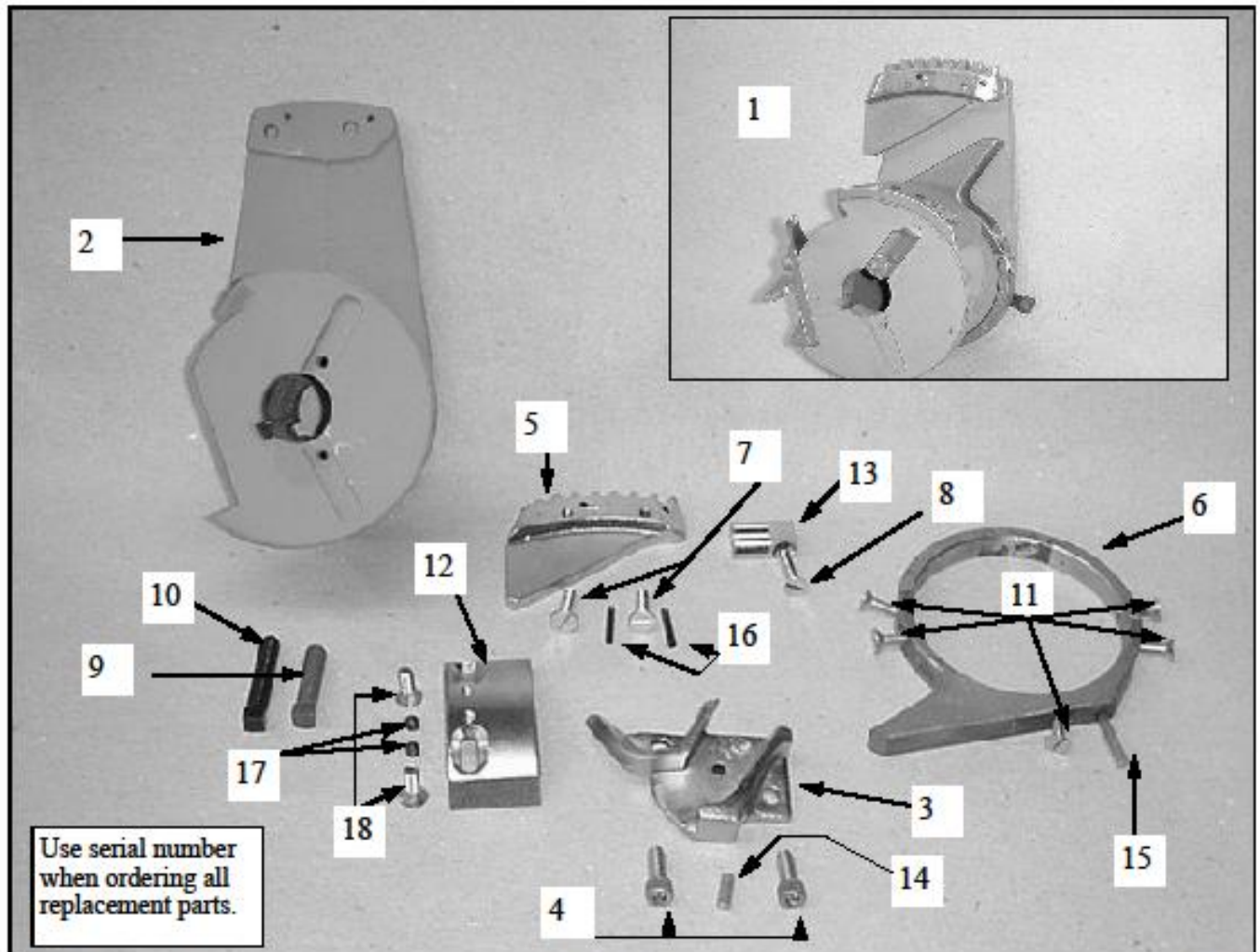
* Assembly does not include items 11,14,20 Order Separately

** Includes 4,17,18,19

*** Sold Separately

Item # 2 and 19 are set for Bunn 16 Ply Twine

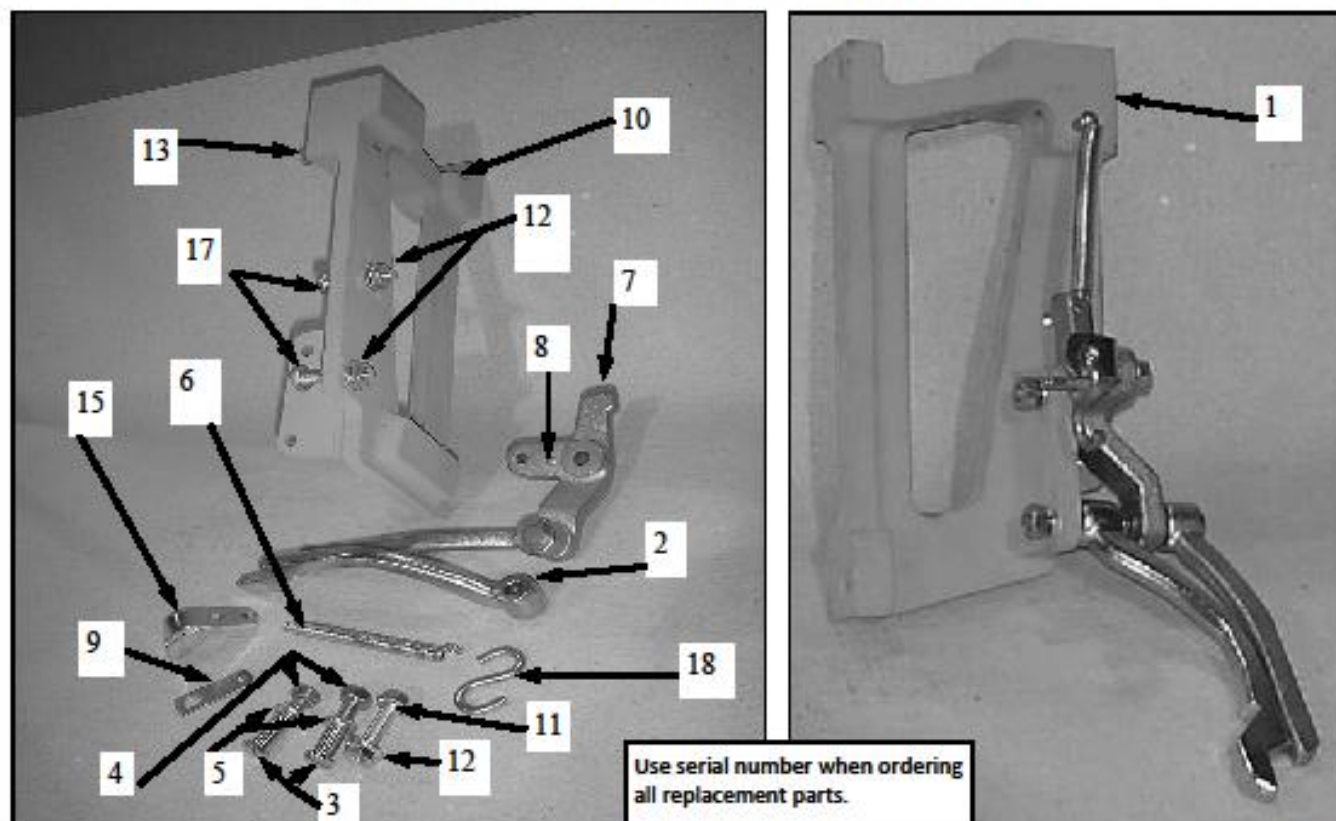
MAIN CAM ASSEMBLY



Index	Part	Qty	Index	Part	Qty
1*	009112 Main Cam Assembly	1	10	100127 Screw, Set Square Head Knurled Cup Point 5/16-18 x 1 1/2 in	1
2**	009102 Main Cam Sub Assembly	1	11	100095 Screw, Machine Flat Head 10-24 x 5/8 in	5
3	009060 Switch, Cam Knotter Head	1	12	209007 Riser, Cam	1
4	100399 Screw, Socket Head Cap 1/4-20	2	13	009026 Clutch, Kickout Block	1
5	020135 Rack, Knotter Cam	1	14	100161 Pin, Knotter Cam Groove	1
6	009113 Ring Cam (Sold as set only)	1	15	100160 Pin, Drawslide Ring Cam Groove	1
7	100102 Screw, Machine Flat Head 12-24 x 3/4 in	2	16	100372 Pin, Knotter Rack Roll	2
8	100326 Screw, Machine Flat Head 10-24 x 7/8 in	1	17	100712 Screw, Socket Set Cone Point	2
9	100128 Screw, Set Square Head Knurled Cup Point 5/16-18 x 1 1/4 in	1	18	100328 Screw, Machine Flat Head 12-24 x 5/8	2

* Includes all Items #2 through #18 ** Includes Items #3,4,12,14,17,18

MAIN TABLE SUPPORT AND KICKOUT ASSEMBLY

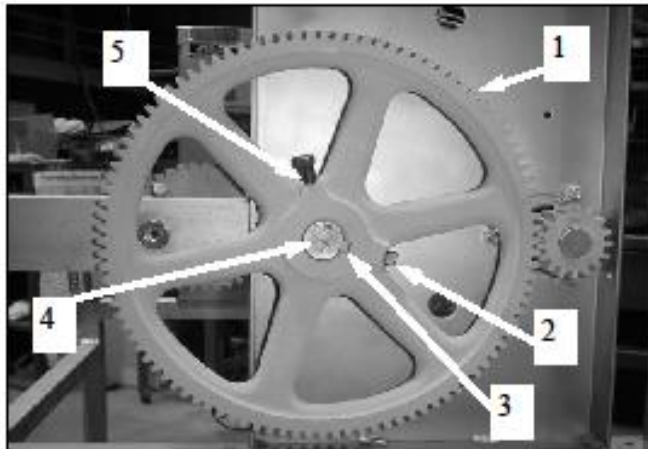


Index	Part	Qty	Index	Part	Qty
1	084071 Main Table Support and Kickout Assembly	1	10**	084054 Main Table Support Sub Assembly	1
2	032081 Lever, Clutch Kickout	1	11	100450 Screw, Hex Head 1/4-20 X 1	1
3	100078 Screw, Trip	2	12	100286 Nut, Flanged Hex Head 1/4-20	3
4	100151 Nut, Hex Head 1/4 - 28	2	13	100503 Pin, Groove 3/16 x 1 1/2	1
5	100135 Washer, Split Lock	2	14*	100273 Screw, Hex Head 5/16-18 X 5/8 -(not shown)	2
6	074055 Spring, Trip Return	2	15	011034 Trip Extension	1
7	011019 Bell Crank and Kickout Wedge Assembly	1	16*	074050 Spring, Trip Cable - (not shown)	1
8	100158 Pin, Groove 3/16 X 1	1	17	100238 Screw, Hex Head 1/4-20 X 1 1/4	2
9	030016 Anchor spring	1	18	100690 S-Hook	1

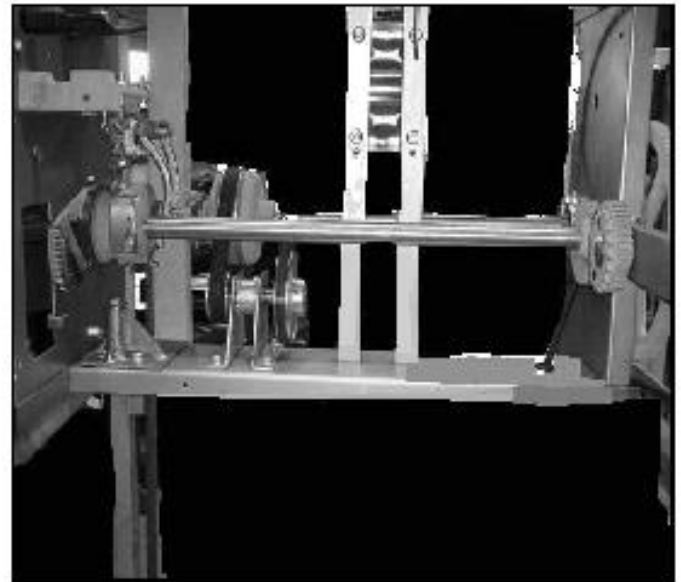
* Not part of assembly. Item 14 are the Mounting Bolts. Order separately

** Includes items 12, 13 and 17

Main Shaft Assembly, Main Gear



Rear View



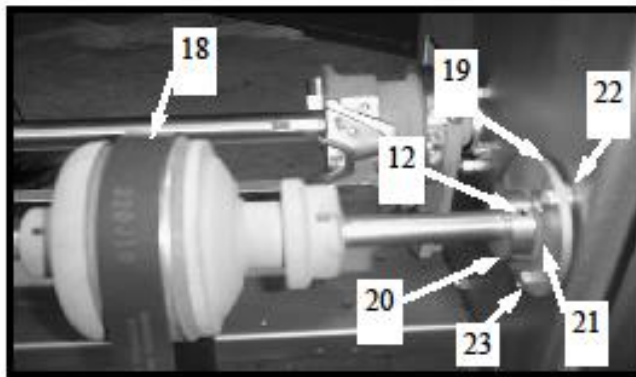
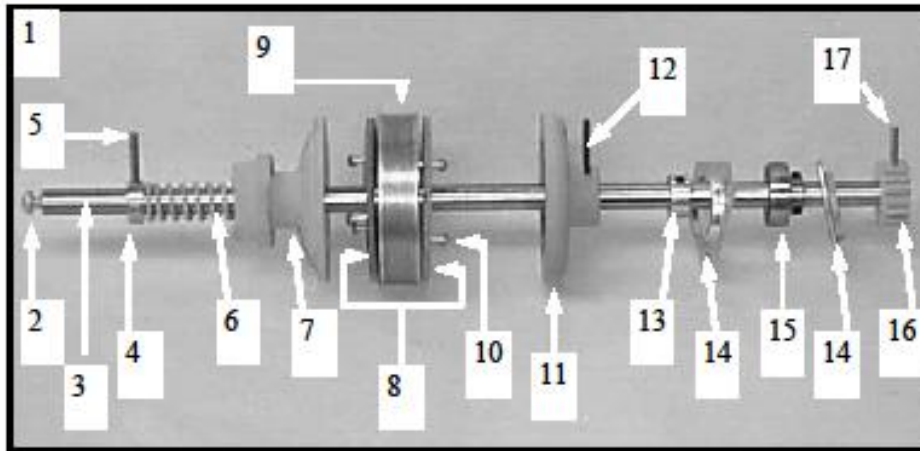
Assembly View
Main Cam, Main Elliptical
gear, Main Shaft

Use serial number when ordering all replacement parts.

Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1	020217	Gear, Main	1	*	013090	Bearing and Collar	2
2	100339	Screw, 5/16 Sq. HD Knurled Cup Point	1	*	013092	Bearing, Flangette	4
3	083090	Key, Main Gear	1				
4	012161	Shaft, Main	1				
5	100128	Screw, 5/16 Sq. HD Knurled Cup Point	1				

* Not shown in this assembly. Needed for final assembly.

MAIN CLUTCH ASSEMBLY



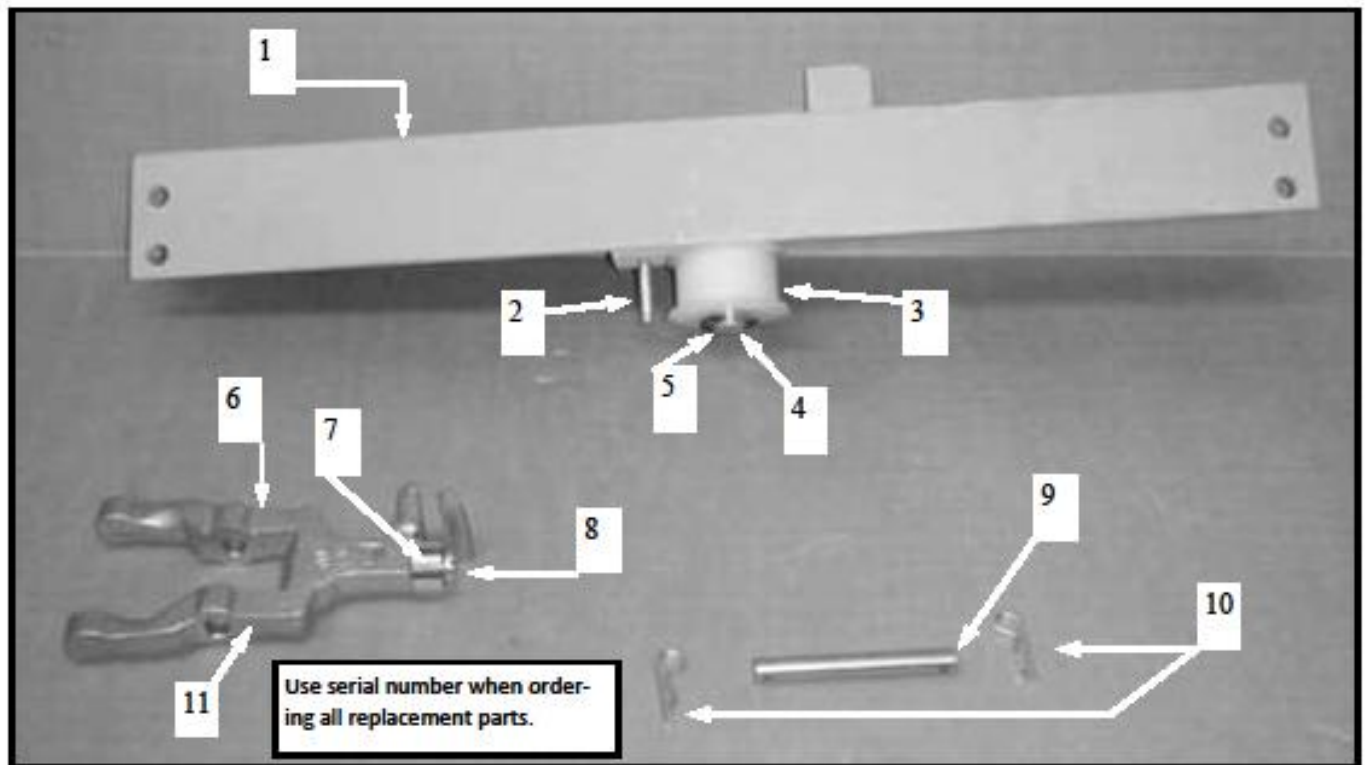
Use serial number when ordering all replacement parts.

Index	Part	Qty	Index	Part	Qty
1*	019143 Clutch Assembly	1	13	094032 Collar, Clutch Shaft Adjustable – Meat Roll	1
2	100688 Screw, Phillips Head	1	14**	013091 Bearing, Flangette Clutch	4
3	012176 Shaft, Clutch	1	15**	013075 Bearing, Clutch Shaft	2
4	094022 Collar, Clutch Shaft End	1	16	020216 Gear, Pinion	1
5	083075 Pin, Clutch Shaft	1	17	100497 Pin, Groove	1
6	074004 Spring, Clutch Compression Heavy	1	18	040010 Belt, Poly V	1
7	024016 Member, Clutch Outer – Meat Roll	1	19	130189 Plate, Clutch Thrust	1
8	024003 Disc, Clutch	2	20	094030 Collar, Clutch Thrust	1
9	019142 Pulley, Clutch Poly V	1	21	024022 Disc, Clutch Thrust Friction	1
10	100181 Screws, Drive	6	22	126075 Spacer, Clutch Thrust Plate	3
11	024009 Member, Clutch Inner– Meat Roll	1	23	100115 Screw, 5/16-18x 1	3
12	100294 Pin, Spirol	2	24	100284 Nut, 5/16-18 Whiz loc (not shown)	3

* Does not include items # 18,19,21,22,23,24

** Additional quantities of 1 each 013075 and 2 each 013091 not shown in picture. Part of final assembly.

Lower Bearing / Clutch Fork

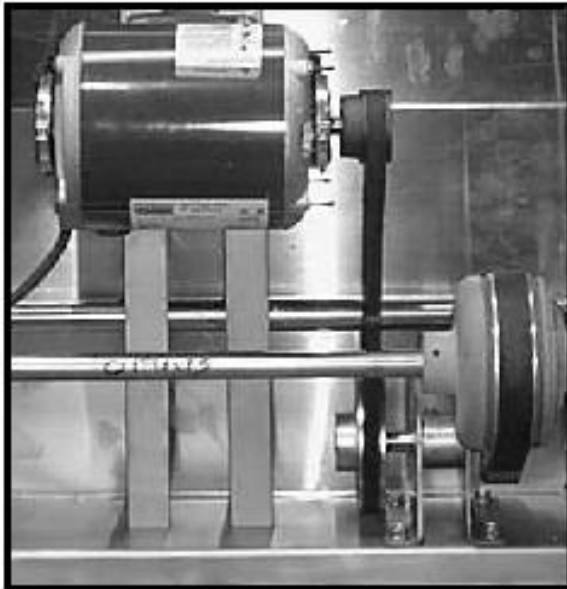


Index	Part	Qty	Index	Part	Qty
1*	025444 Bearing, Lower Assembly	1	7	064043 Roller, Clutch fork	1
2	100503 Pin, Chain retaining	1	8	100072 Screw, Clutch Fork Roller	1
3	064038 Roller, Trip Chain	1	9	083006 Pin, Clutch Fork Pivot	1
4	081112 Stud, Trip Chain Pivot	1	10	100297 Pin, Hitch	2
5	101714 Retaining,, Ring External	1	11**	071005 Fork, Clutch Assembly	1
6	071001 Fork, Clutch	1			

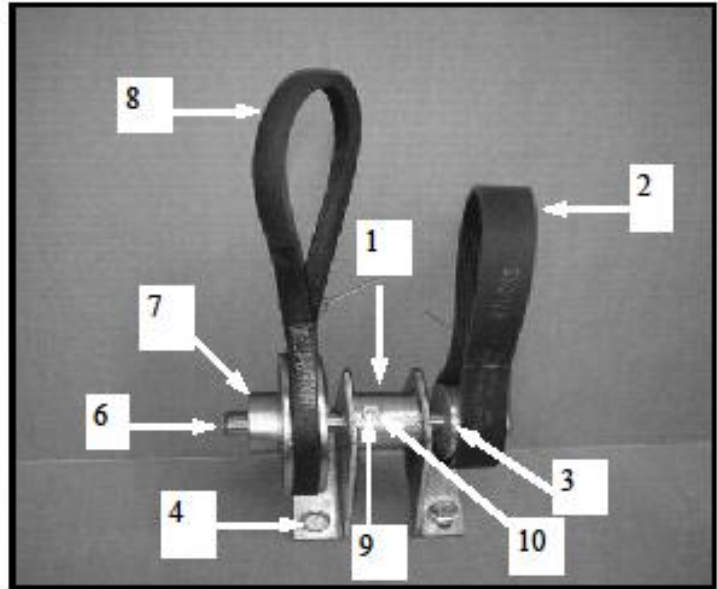
* Includes items # 2,4

** Includes items # 6,7,8

Speed Reducer Assembly



Assembly View

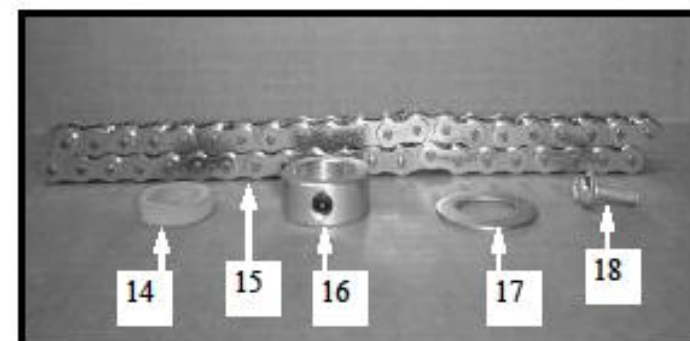
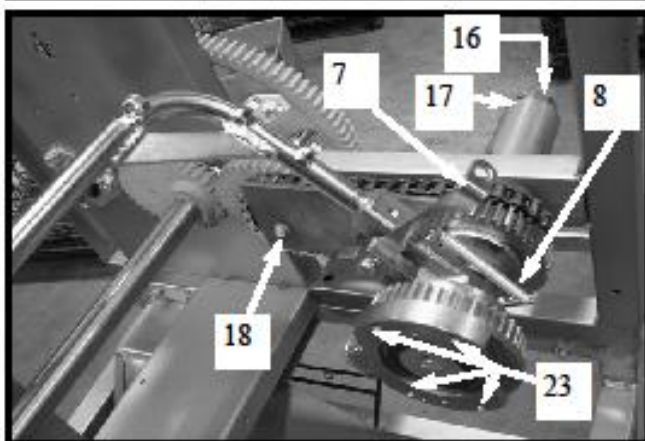
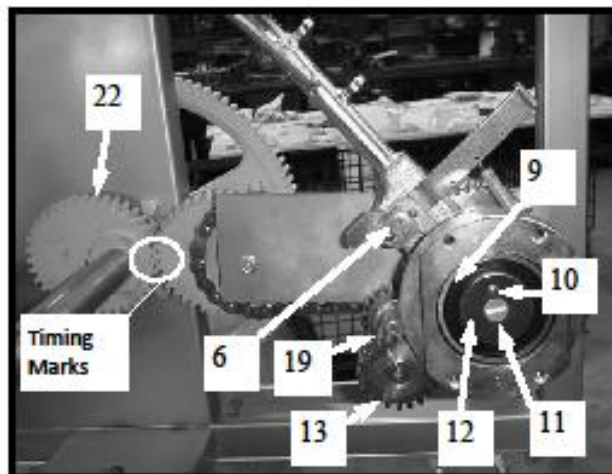
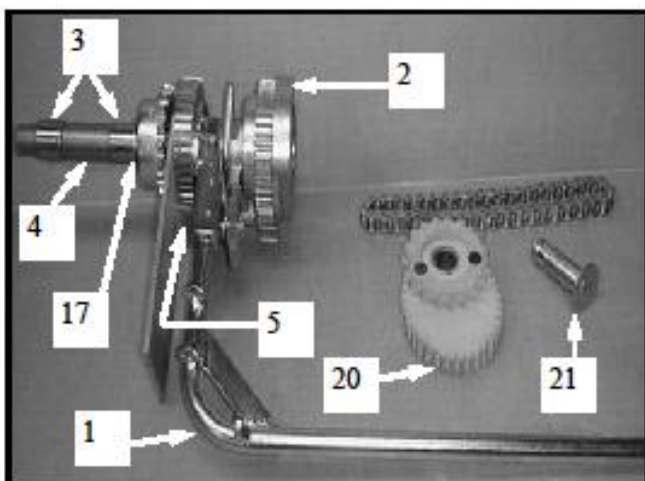


Use serial number when ordering all replacement parts.

Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1*	027007	Speed Reducer Assembly	1	7	019133	Sheave, Speed Reducer V Belt	1
2	040010	Belt, Poly V	1	8	040001	Belt, V2300	1
3	019144	Sheave, Speed Reducer Poly V	1	9	100687	Screw, Set	1
4	100239	Screw	4	10	100144	Nut	1
5	100284	Nut – Not Shown	4	11	100262	Screw, Set (not shown)	2
6	013105	Shaft, Speed Reducer	1				

* Includes items # 3,6,7,9,10,11

Twine Arm & Chain Gear Assembly

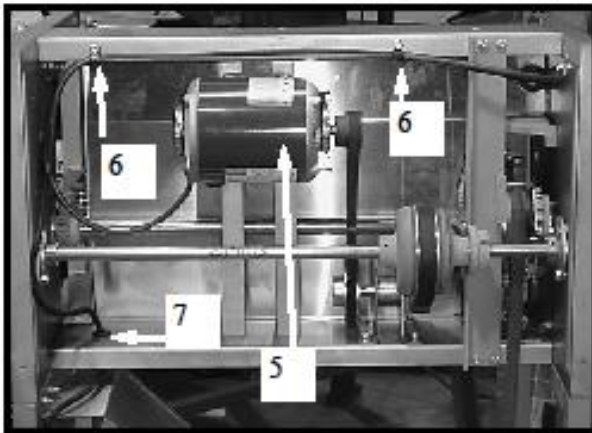
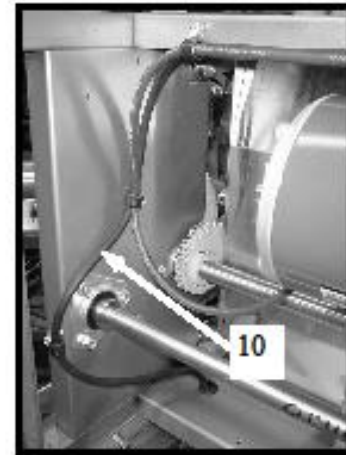
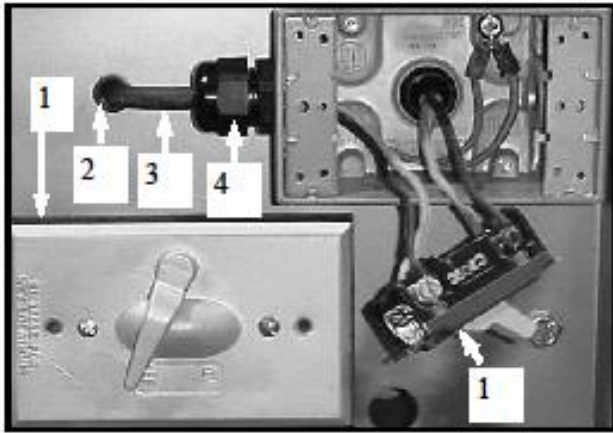


Use serial number when ordering all replacement

Index	Part	Qty	Index	Part	Qty
1*	041388 Twine Arm Assembly	1	13	020008 Gear, Twine Arm Transfer	1
2	034013 Gear, Housing Assembly	1	14	126100 Spacer, Chain Gear	1
3	013016 Race, Inner Torrington	2	15	135082 Chain, Stainless Steel	1
4	126006 Spacer, Twine Arm	1	16	094008 Collar, Twine Arm	1
5	100504 Nut, 5/16 Hex Jam	1	17	100030 Washer, Twine Arm Retaining	1
6	100040 Screw, Drawback Lever	1	18	100256 Screw, 1/4-20 Whiz	1
7	032216 Lever, Drawback	1	19	100739 Gits, Ball Valve	1
8	074018 Spring, Drawback	1	20	020213 Chain Gear Assembly	1
9	013065 Bearing, Ball	2	21	081077 Stud, Chain Gear	1
10	100235 Pin, Taper	1	22	020215 Gear, Elliptical Lower	1
11	100110 Screw, 1/4 – 20 NC x 5/8	1	23	100111 Screw, 1/4 x 20	4
12	100039 Washer, Bearing retaining	1			

* Does not include items # 14,15,16,18,20,21,22

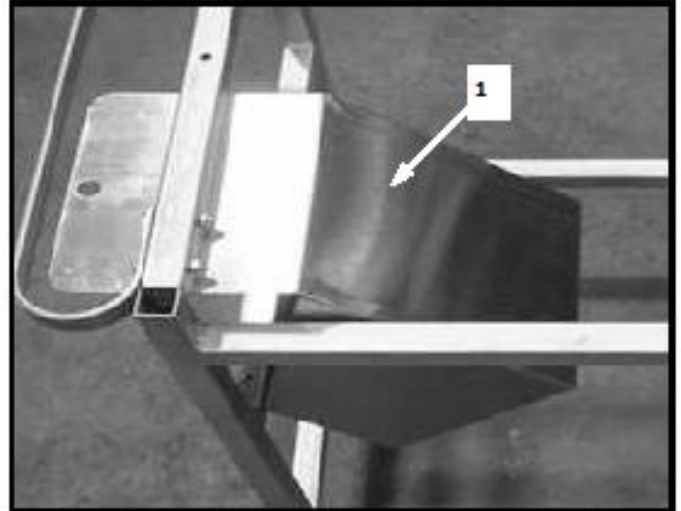
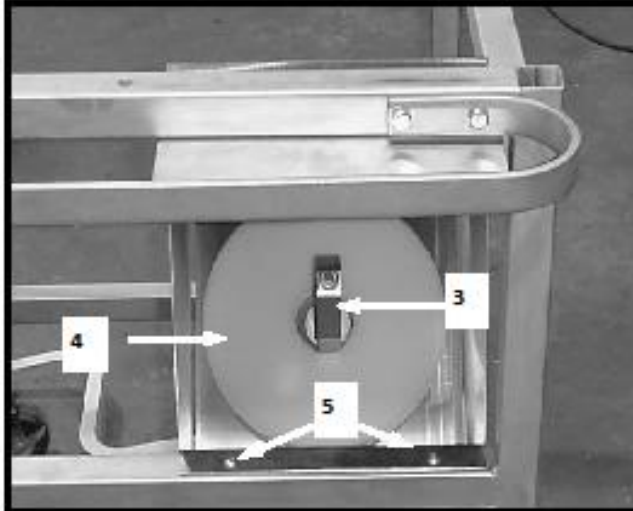
Electrical Parts



Use serial number when ordering all replacement parts.

Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1	050190	Cover Plate & Switch	1	6	100303	Clamp	5
2	050271	Bushing	1	7	100320	Grommet	1
3	050038	Cord, Power w/ Molded Plug	1	8	050193	Strain Relief 90 degree	1
4	050191	Strain Relief Straight	1	9	100735	Grommet	1
5	039014	Motor	1	10	050263	Cord, Switch to Motor	1

Twine Enclosure Assembly



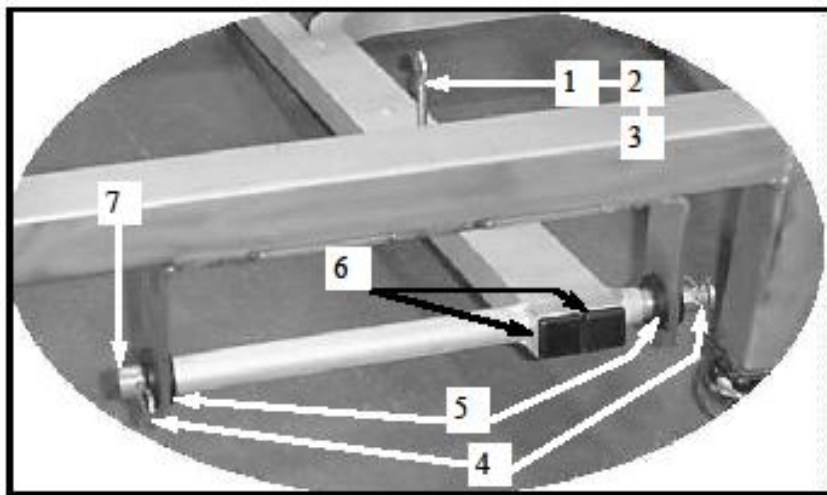
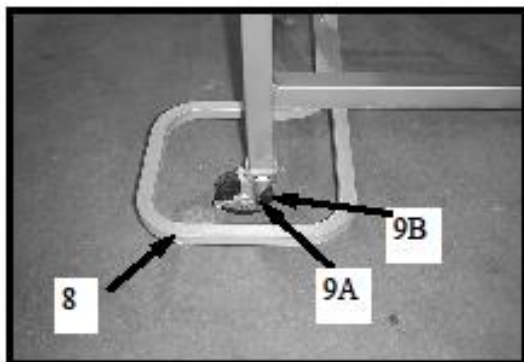
Use serial number when ordering all replacement parts.

Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1*	110061	Twine Enclosure Assembly	1	4**	077016	Pad, Twine Cone	1
2	110060	Twine Enclosure	1	5	100686	Screw, 1/4-20NC x 3/8 Button	4
3	070076	Holder, Twine Cone	1				

* Item includes 2,3,4

** All twine cone assemblies must have this pad to ensure the twine is not pinched at bottom of the cone.

Trip Pedal Assembly



Full View

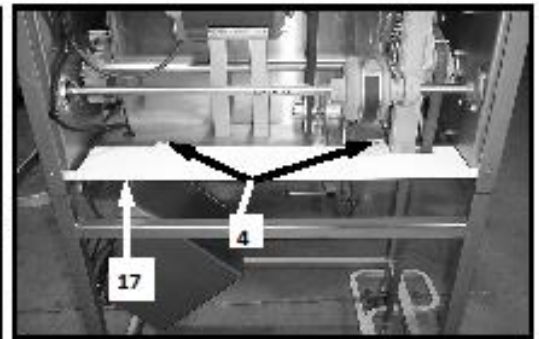
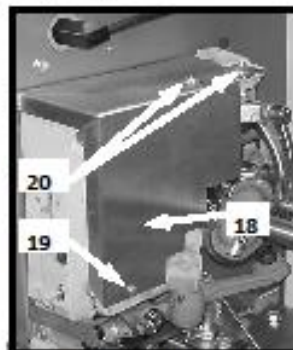
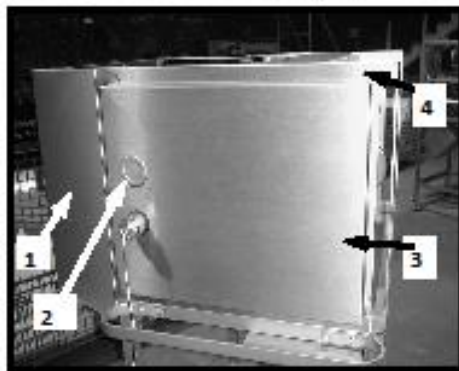
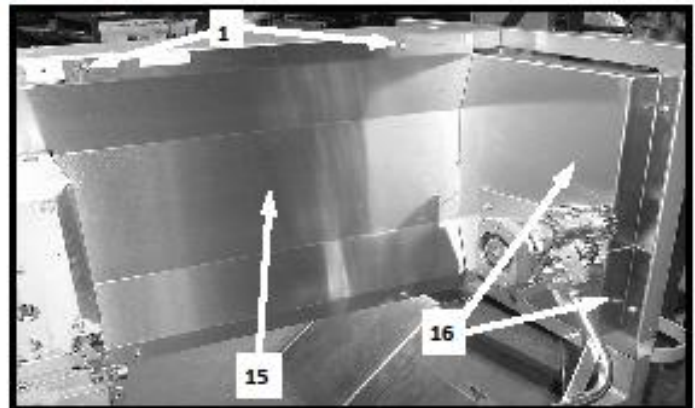
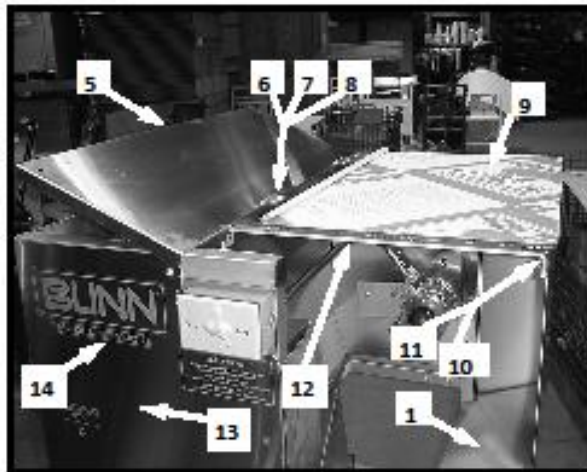
Use serial number when ordering all replacement parts.

Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1	100697	Bolt, Eye	1	6	081117	Cap, Small End	2
2	100520	Nut, 10-24 ESNA	1	7	012177	Shaft, Foot Pedal	1
3	100143	Nut, 10-24 Hex	1	8*	059037	Pedal, Foot	1
4	100633	Pin, Hitch	2	9A	135196	Caster, STM Stainless Steel Total Lock	2
5	100320	Grommet	2	9B**	135200	Caster, STM Stainless Steel Swivel	2

* Includes items # 1,2,3,6

** 9B Use in Foot Pedal Area and Diagonal Leg.

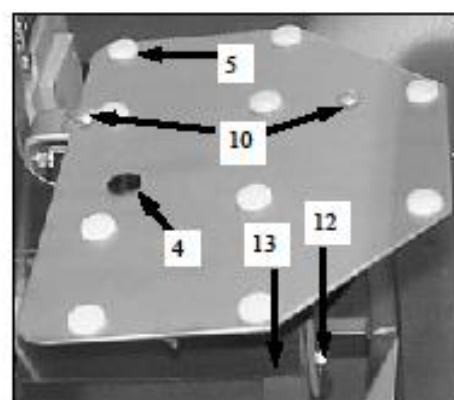
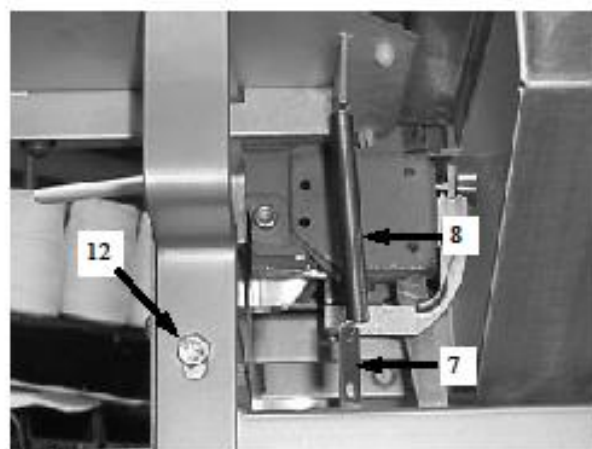
Guarding & Panels



Use serial number when ordering all replacement parts.

Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1	132293	Guard, Right side STM1016	1	11	100581	Nut, 1/4-20 Acorn	1
2	081120	Plug, Rear (first models only)	1	12	131122	Strap, Top Channel to Right Hand Guard	1
3	132288	Guard, Rear Gear	1	13	132291	Guard, Front & Left Side	1
4	100686	Screw, 1/4-20NC x 3/8 Button	33	14	123022	Labels (one sheet includes all labels)	1
5	132300	Guard, Top Door	1	15	132298	Guard, Shaft Cover	1
6	100482	Washer, Counter Sunk	6	16	132296	Guard, Inside Gear (available as set only))	1
7	100538	Nut, Double Spot Weld	2	17	132302	Guard, Bottom Left	1
8	100694	Screw, Oval Head	6	18	132301	Guard, Main Table Cover	1
9	132295	Door, Top Access w/ protective coating	1	19	100099	Screw, Self tapping	1
10	100581	Screw, 1/4-20	1	20	100286	Nut, Flanged Whiz	2

Front & Rear Table Assemblies



Use serial number when ordering all replacement parts.

Index Number	Part Number	Description	Qty Req	Index Number	Part Number	Description	Qty Req
1	007156	Front Table	1	12	100284	Screw	2
2	010196	Back Table Rear	1	13	100579	Nut	2
3	010198	Back Table Tray	1				
4	013108	Grommet	1				
5	081111	Buttons	10				
6	084072	Front Table Support Assembly	1				
7	032217	Front Table Spring Bracket	1				
8	074059	Front Table Spring	1				
9	100111	Screw, 1/4 x 20	4				
10	100108	Screw	2				
11	100286	Nut, Whiz loc	2				

Note: Item #6 sold as assembly only

Two ways to keep your BUNN tying machine in top operating order -

1 Use Only BUNN twine or tapes

Bunn has the right tying twines for every job...
cottons, rayons, nylons, poly tapes and heavy-duty
twines with a complete selection of tensile strengths.
BUNN twines have high speed quality characteristics
that are guaranteed to match your machine performance.

2 Use the right twine for the job

Rayon A continuous filament, high tensile strength with very little stretch and minimal lint build-up.

Cotton A high quality grade natural fiber.

HY-TY A high, wet modulus rayon that is clean, white and is the finest twine on the market.

Special HY-TY A blend of the best characteristics of both cotton and polyester offering a high yield and strength with economy.

Polyester A high grade synthetic fiber that provides maximum tensile strength, clean appearance and minimal lint build-up.

Poly tape A low density polyethylene tape that is a soft non-abrasive blend with all the strength and tying characteristics of conventional twine yet is still economical.
