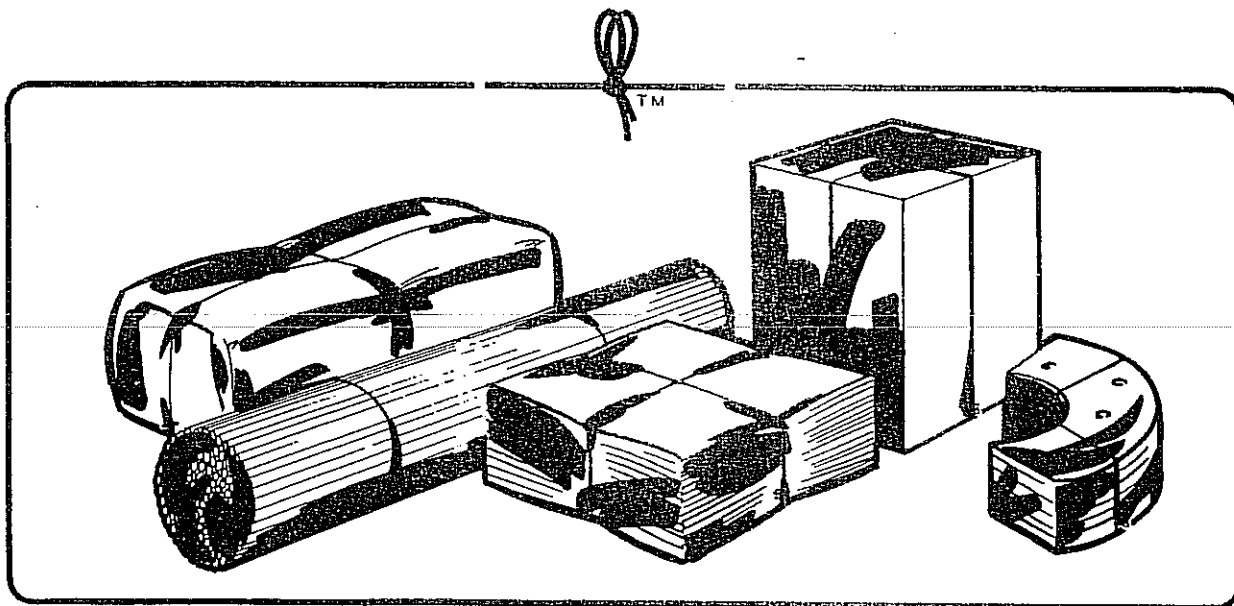


TYING MACHINES OPERATOR'S MANUAL



SINCE 1907 THE ORIGINAL PACKAGE TYING MACHINE

B.H. BUNN COMPANY

12550 South Lombard Lane, Alsip, Illinois 60658
Cable: BUNNTYCO Telex: 255203 Telephone: 312-388-7600

NOTICE

Do not attempt to operate this equipment before reading the operation instructions and performing the Before Operations 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 panels removed and keep hands away from inside of guard to avoid being struck by twine arm.**
- **Do not remove grounding prong from power cord.**

TYING MACHINES OPERATOR'S MANUAL

Foreword

This manual contains instructions for installation, operation, preventative maintenance, troubleshooting, and repair parts identification for your Tying Machine Model manufactured by the B. H. Bunn Company, Alsip, Illinois. Proper use of the manual should ensure safe and efficient operation and maintenance of the tying machine.

Because of the increasing staff of Service Rep-

resentatives, B. H. Bunn Company can now offer a Maintenance Contract. Contact your local Service Representative, who is capable to render factory approved service, for full detail maintenance contract information, or the B. H. Bunn Company.

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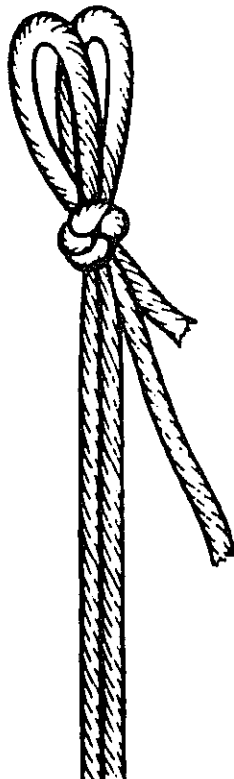
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The Quality Knot Tells the Story

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 end 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.

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12500 SO. LOMBARD LANE

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MANUFACTURERS OF QUALITY *Bunn Package Tying* MACHINES SINCE 1907

— SEE INSIDE BACK COVER FOR NAME, ADDRESS & PHONE NUMBER OF NEAREST DISTRIBUTOR —

Section I Introduction

PURPOSE OF TYING MACHINE

The primary purpose of the tying machine is to automatically tie mail, packages, cartons, pieceparts, printed matter, newspapers, laundry, produce, meat, corrugated cardboard, and miscellaneous materials and products requiring a secure wrap.

The tying machine ties almost everything that was previously wired, banded, taped, strapped or previously tied by hand in offices, factories, and commercial establishments.

The tying machine reduces tying time, employee effort and fatigue, reduces twine lint and twine waste, enables trained operators to make secure ties quickly, ties larger bundles with greater ease and efficiency, and discourages tampering because the tied knot cannot be duplicated by hand tying.

GENERAL DESCRIPTION

The tying machine (illustrated on the Characteristics Sheet at the front of the manual) consists of a main table assembly, knotter head assembly, and base parts.

The tying machine is of steel and cast iron construction. Caster wheels are provided for fast easy mobility.

All moving parts are enclosed except for the twine arm which is shielded by a twine arm guard to prevent accidental contact from the sides or rear of the tying machine.

Controls are located in the front of the tying machine within easy and comfortable reach of the operator. An operator's foot pedal provides the means to activate the tying machine.

Operator maintenance points are easily reached without the use of tools.

Refer to the Model Characteristics Sheet at the front of the manual for additional information for your tying machine model.

PRINCIPLES OF OPERATION

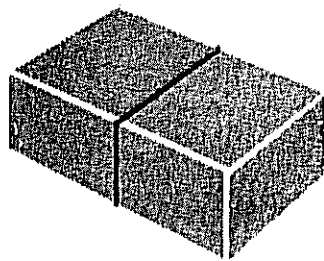
With the tying machine power cord connected to an appropriate power source, the power switch set to the "on" position, the bundle to be tied properly positioned on the front table and back table, the tying cycle is started by the operator applying toe pressure to the foot pedal.

Power from the electric motor assembly is transferred to the drive assembly through the drive-belt. Through a series of gears, the drive assembly rotates the twine arm one, two or three revolutions around the bundle. As the twine travels through the twine arm and passes the drawslide during the final revolution, the drawslide snaps back allowing the twine to fall into position behind the stringholder button. The drawslide and tip-up then push and lift the twine across the knotter into position.

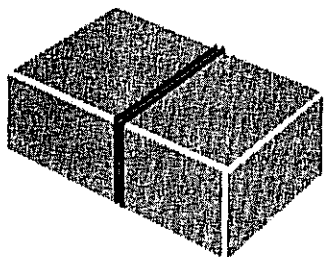
The knotter body assembly moves forward catching the twine and turns counter-clockwise opening its jaws for the two strands of twine which are wrapped around the knotter body assembly. The strands of twine are brought through the jaws and the jaws firmly lock. The knotter body assembly then moves toward its finished position and the stripper forces the twine strands off the knotter body assembly jaws into the tight parts of the knot. As the two strands of twine are pulled into loops from the knotter body assembly jaws, the knife trap moves forward, cuts a fresh end of twine and pulls the previously cut end of the twine from behind the stringholder button. The knotter body assembly completes its movement to the finished position and the knotter body assembly jaws to release the loops, completing the tying process.

The tied bundle is then removed from the tying machine.

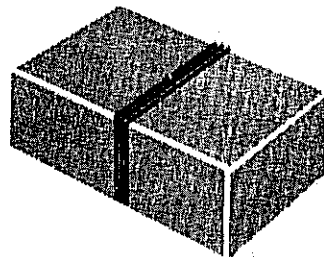
Basic Types of Different Wraps



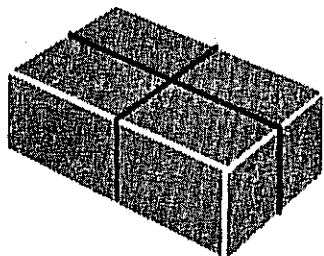
Single Wrap — The arm carries the twine around once and the knot is formed.



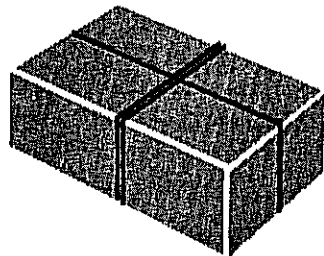
Double Wrap — ONE WAY Two wraps in one direction with one knot.



Triple Wrap — ONE WAY Three wraps in one direction with one knot.



Double Wrap* — CROSS TIE One wrap in each direction with only one knot.



Triple Wrap — CROSS TIE** One wrap in one direction; two wraps in other direction — with only one knot.

**Triple wrap cross tie additionally provides: (1) three wraps in one direction if package is not turned between wrap cycles; (2) two wraps one way by tripping out the first wrap.

*Double wrap cross tie also provides: (1) two wraps in one direction if package is not turned between wrap cycles; (2) one way by tripping out the first wrap.

Section II Preparation For Use

POWER REQUIREMENTS

The single-phase, ¼ 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 electrical 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 fibre 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 misties. 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 B.H. Bunn Company factory representative when and if it ever becomes necessary to change to a different material-twine to tape or tape to twine.

The twine container will hold up to a 5-pound cone of twine. The base diameter of the cone must not exceed 9 inches.

Threading Procedure

Before 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.

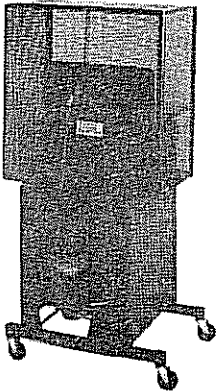
Complete threading of the tying machine can be avoided if the end of the twine or tape being used is caught before it leaves the twine container. This is accomplished by simply tying the end of the existing

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

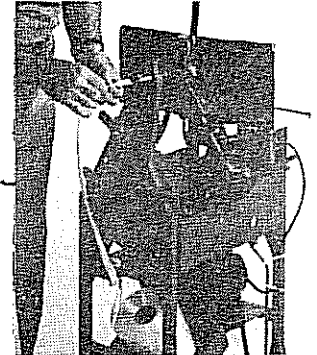
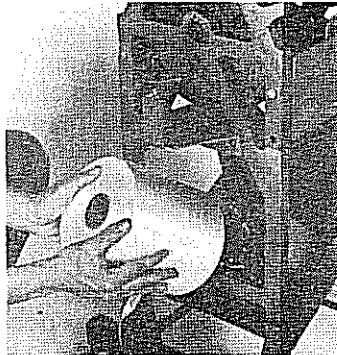
If the end of the twine or tape is not caught before it leaves the twine container, the tying machine must be threaded as explained in the subsequent procedures.

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.

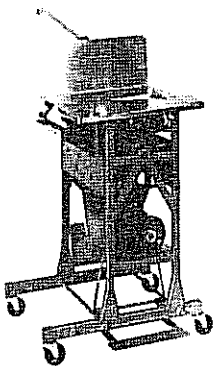
Never thread machine while motor is operating.



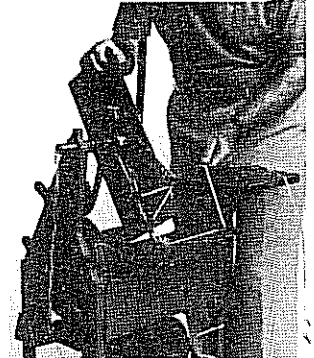
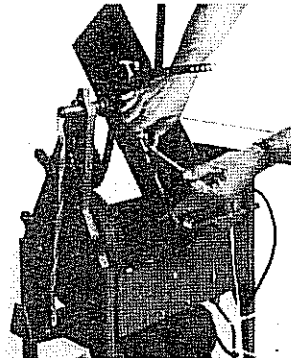
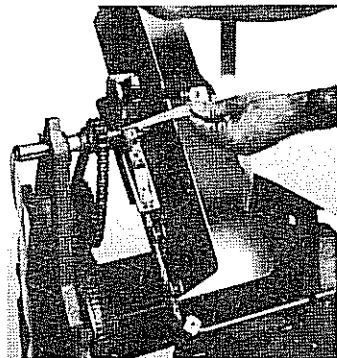
REAR



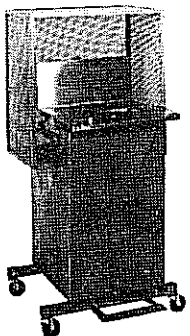
Place twine cone over cone pilot assembly. Press firmly until cone is seated on foam pad at bottom of twine container. Note: Cone pilot assembly is adjustable if cone does not seat properly. Grasping end of twine, thread through guide (label #1) and quill shaft (label #2) as illustrated.



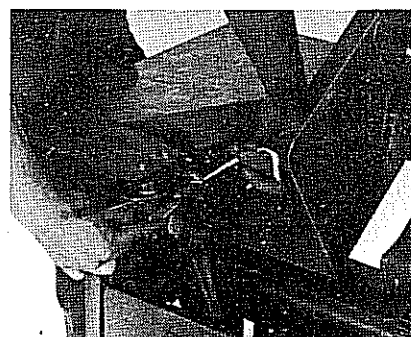
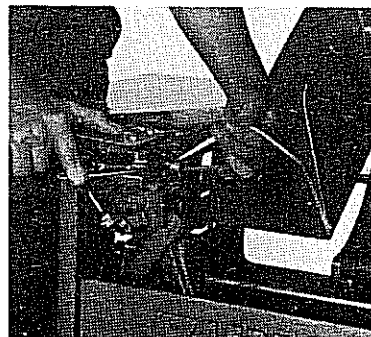
WITHOUT GUARD



Fish twine out from quill shaft (label #3) on inside of machine. Thread twine through tension device under tension spring between rows of pins. Spring (label #4) may be lifted GENTLY to facilitate this procedure. Continue to thread through roller (label #5), end of drawback lever (label #6), rollers (labels #7 & #8) and tip of twine arm (label #9).



FRONT



Pull twine to right side of machine. While depressing stringholder release lever, place twine under stringholder button (label #10). Pull twine or tape up and over button shaft and release stringholder release lever. Pull twine or tape taut and manually activate knife trap lever (as illustrated) to cut off excess twine.

Section III Operation

BEFORE OPERATION CHECKS

1. TURN MASTER 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 tension should be felt.
5. Visually check tying machine for any mechanical defects or missing parts.
6. Verify that electrical power cord is inserted into receptacle and then set power switch to the "ON" position.

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 its 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-WAY WRAP OPERATION

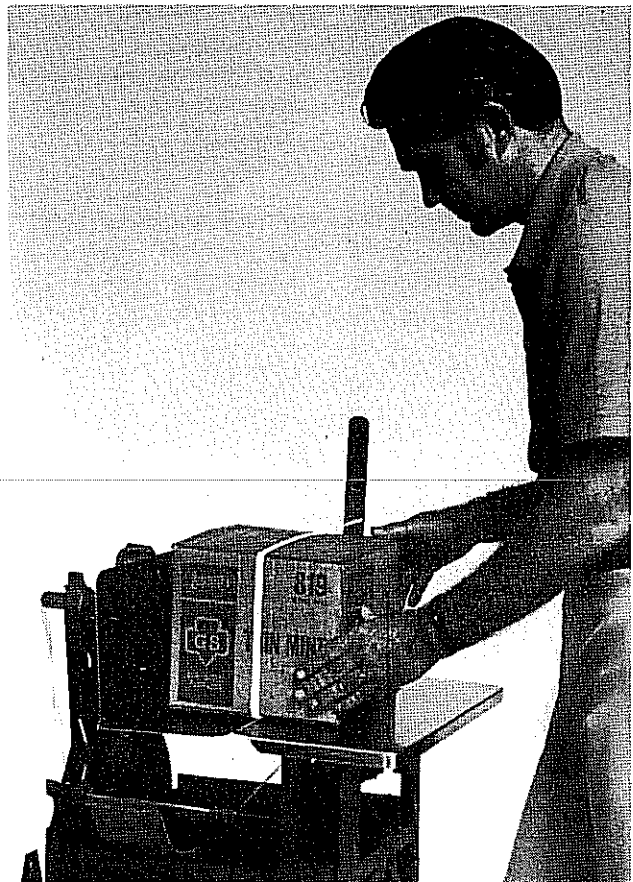
1. Stand in front of the tying machine at the operating position — the widest side of the fixed table.
2. Set power switch to "ON" position.
3. Hold ends of package between thumbs and forefingers of both hands and position package on tying machine table so that right side of package is butted against standard (figure 3) and positioned over gap between front and back tables.

4. Momentarily depress foot pedal holding package firmly until tying cycle is completed. The tying cycle is completed after the twine arm makes the required wraps, one, two, or three.

NOTE

The tying machine automatically compensates for the size and shape and the different lengths of twine required. The tying machine also automatically applies the correct amount of tension, ties the patented slipproof and tamperproof knot and then cuts the twine.

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 power switch to "OFF" position.



CROSS WRAP OPERATION

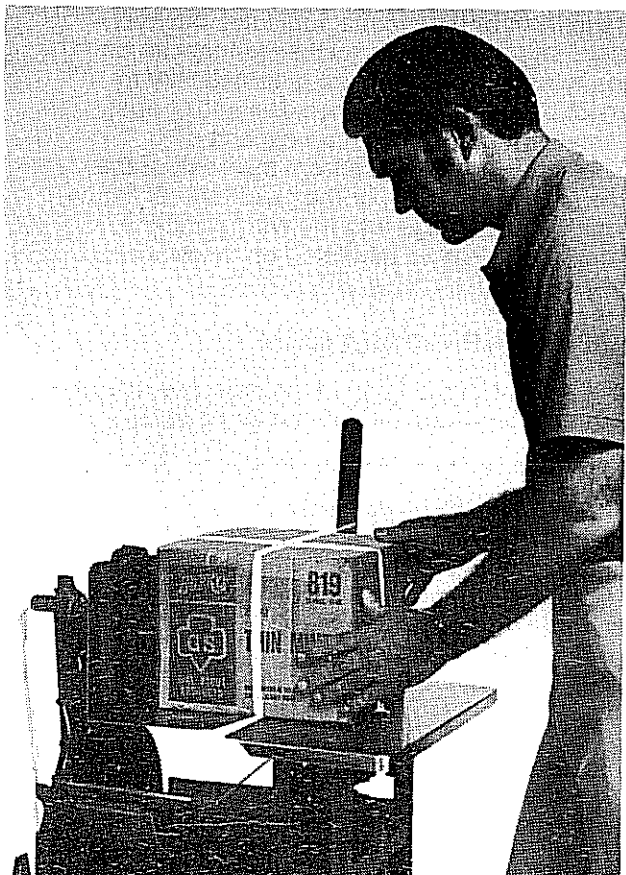
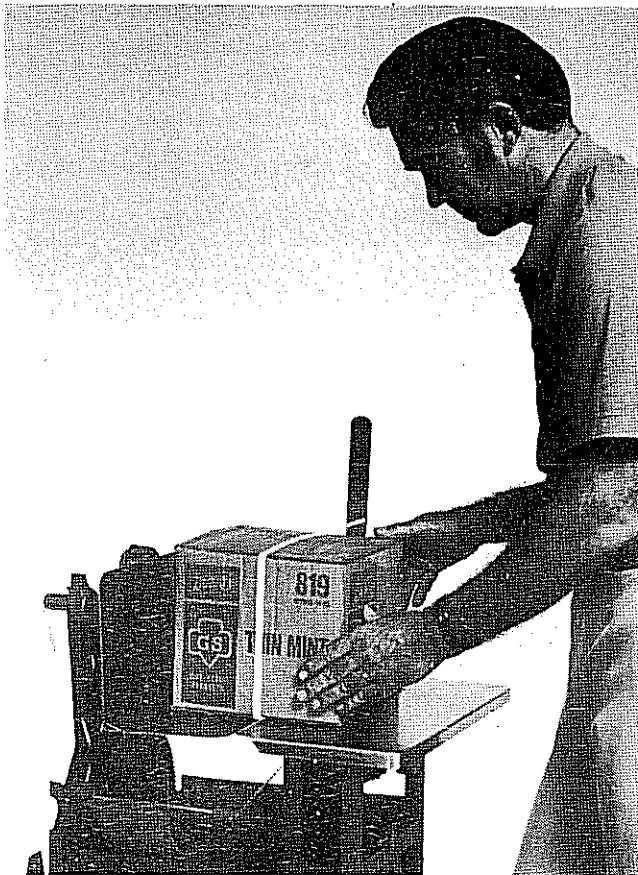
1. Stand in front of the tying machine at the operating position — the widest side of the fixed table.
2. Set power switch to "ON" position.
3. Hold ends of package between thumbs and forefingers of both hands and position package on tying machine table so that right side of package is butted against standard or notch in front table (figure 4) and positioned over gap between front and back tables.
4. Momentarily depress foot pedal holding package firmly until tying arm completes one revolution.
5. Turn package 90 degrees IN CLOCKWISE DIRECTION (figure 4) in tying machine.
6. Depress foot pedal (second time) holding package firmly until tying cycle is completed.
7. Remove package from tying machine.

8. Repeat steps 3 through 6 above for each package to be tied.

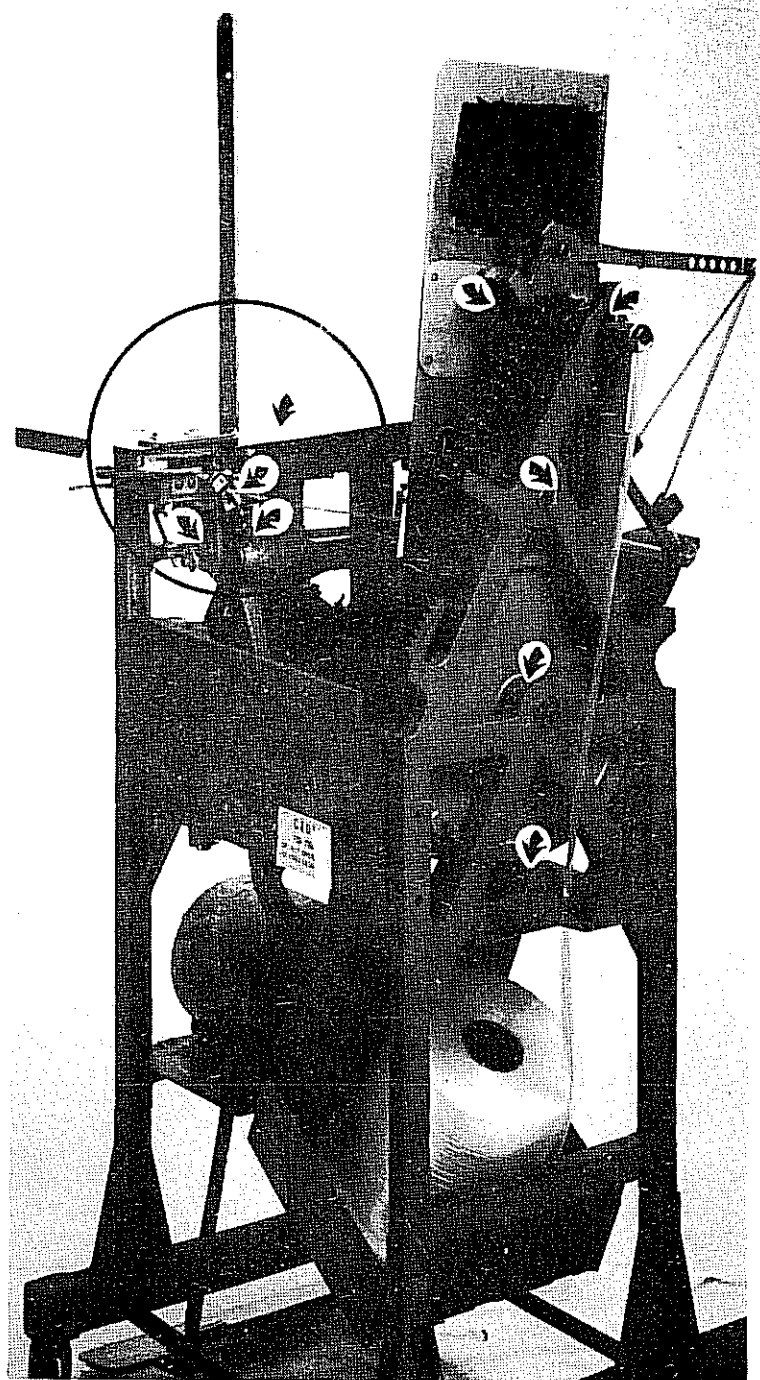
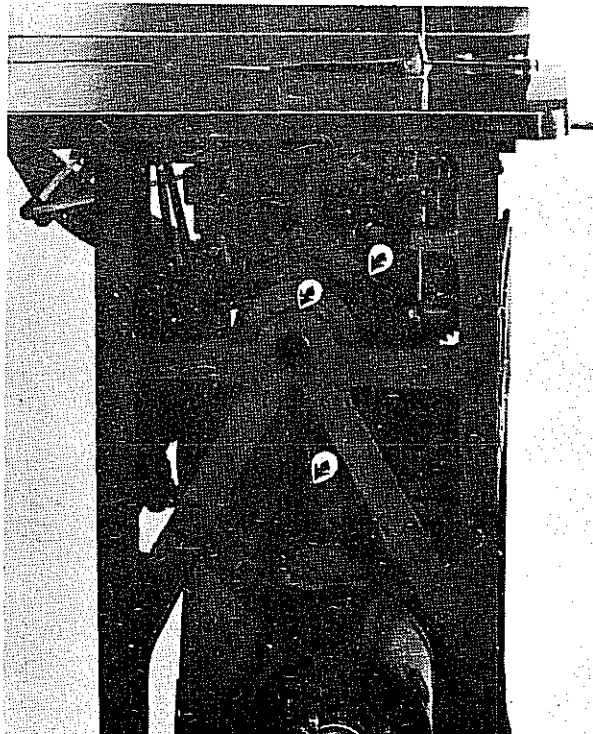
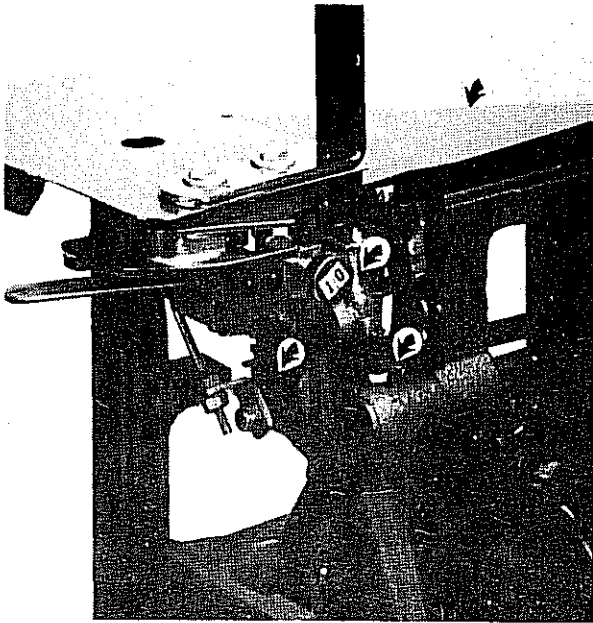
9. After all packages have been tied, set power switch to "OFF" position.

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 hole. A small pair of tweezers can be used for this purpose.
3. Cover tying machine with plastic bag used to ship tying machine.



Lubrication Requirements



Arrows in photos identify oil holes. Refer to maintenance guide, page 13, for lubrication requirements.

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 schedules 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 Lubrica-

tion Requirement has frequencies of 50 and 150 hours.

The following mechanical components should be checked daily: stringholder button holes for lint or twine build-up, knife conditions, V-belt tension, loose hardware and broken or weak knotter flat springs. The twine running tension should be checked on a monthly basis.

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

LUBRICATION ITEM	FREQUENCY	
	50 HOURS	150 HOURS

NOTE - Apply several drops of SAE oil or equivalent unless otherwise specified. If necessary, refer to the exploded views in the parts list section of this manual for assembly part nomenclature.

KNOTTER HEAD ASSEMBLY

1. Oil cup (Knotter Head Pivot).	✓	
2. Two oil holes (encircles in red on machine).	✓	
3. Between knotter lever and knotter head subassembly.		✓
4. Around diameter of knotter roller.		✓
5. Knotter lock plunger.		✓

STRINGHOLDER ASSEMBLY

1. Between knife trap pivot and knife trap lever assembly.	✓	
2. Between knife trap shoulder screw and knife trap lever assembly.	✓	

MAIN TABLE ASSEMBLY

1. Around diameter of drawside lever assembly roller.	✓	
2. Between washer and drawside lever assembly.		✓
3. Between drawslide lever assembly and main table subassembly.	✓	
4. Into three oil holes (encircles in red on machine).	✓	
5. Between stripper and main table subassembly so that stripper pivot pin is lubricated.	✓	

NOTE - Apply a liberal coat of recommended lubricant to the following unless otherwise specified.

DRIVE ASSEMBLY

1. Main gear cam surface.		✓
2. Knotter rack assembly cam surface and teeth.		✓
3. Cam riser cam surface.		✓
4. Cam switch cam surfaces.		✓
5. Apply several drops of SAE 10 oil to chain gear oil hole (encircled in red on machine).	✓	
6. Apply several drops of SAE 10 oil to the two oil cups.	✓	
7. Apply several drops of SAE 10 oil to the back frame two oil holes (encircled in red on machine).	✓	
8. Main shaft (encircled in red on machine).	✓	
9. Clutch shaft (encircled in red on machine).	✓	
10. Clutch fork pivot (encircled in red on machine).	✓	

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 may develop in the tying machine.

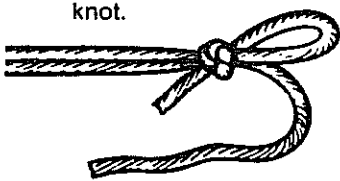


The tying machine is generally trouble free. However, the tying machine suffers the usual wear and misadjustment from normal use.

Careful inspection and accurate analysis of the

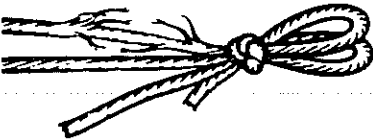
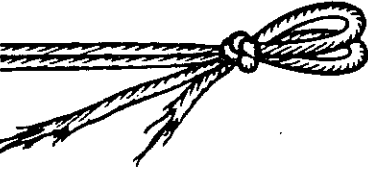




symptoms listed in the Table of Trouble Shooting Information will localize the trouble more quickly than any other method.

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 trouble.

Trouble Shooting Information

TROUBLE	POSSIBLE CAUSE	CORRECTIVE ACTION
A. Tying machine will not operate with power 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 of electric power cord. Correct defect as required.
	Broken or disconnected circuit wire.	Repair or replace broken wire.
	Faulty power switch.	Replace defective power switch.
B. Twine (or tape) breaks frequently in stringholder button.	Improper twine (or tape). Excessive stringholder button tension.	Use proper size of twine (or tape). 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 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). One loop catching in back of knotter throat, improper knotter release adjustment.	Use proper size of twine (or tape). Readjust knotter release.

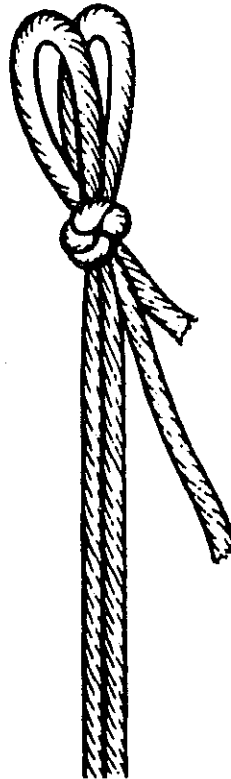
Trouble Shooting Information (cont.)

TROUBLE	POSSIBLE CAUSE	CORRECTIVE ACTION
<p>F. Break in twine in front of knot.</p> 	<p>Friction along twine (or tape) path.</p>	<p>Remove sharp edges from twine path in twine tension plate assembly, twine bracket, quill shaft, twine arm hub, twine arm assembly ring guides, drawback lever, and twine arm tip.</p>
<p>G. Ragged ends of twine at knot.</p> 	<p>Dull or knicked knife.</p>	<p>If knife is excessively knicked, replace. If knives continue being knicked, lubricate knife trap pivot points to assure that knife trap does not stick, allowing knife to remain in path of drawslide.</p>
<p>H. Loose knot and loops slightly shorter than normal.</p> 	<p>Loops release from knotter too soon, improper knotter release adjustment. Stripper too short.</p>	<p>Readjust knotter release. Replace stripper.</p>
<p>I. Short loops and tight knot.</p> 	<p>Improper balance between twine running tension and stringholder button pressure.</p>	<p>Check stringholder button pressure. Readjust twine running tension.</p>
<p>J. Cut loop ends.</p> 	<p>Stripper points shearing against side of knotter jaws when stripping.</p>	<p>Readjust stripper shear action, bend top front end of stripper down tapping with a light hammer.</p>
<p>K. Very short loops and long ends.</p> 	<p>Knot slipping by stripper. Improper gap between stripper point and knotter. Knotter flat springs broken or weak.</p>	<p>Realign stripper point and knotter. Replace knotter flat springs.</p>
<p>L. Twine (or tape) catches in stripper.</p>	<p>Stripper spring broken or weak.</p>	<p>Replace stripper spring.</p>
<p>M. Twine (or tape) pulls out of stringholder button.</p>	<p>Twine (or tape) improperly threaded.</p>	<p>Check stringholder button threading and rethread if necessary.</p>

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 end 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 knotter.



Important!

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

B. H. Bunn Company

12500 SO. LOMBARD LANE

ALSIP, IL 60858

PHONE (312) 388-7600

MANUFACTURERS OF QUALITY *Bunn Package Tying* MACHINES SINCE 1907

— SEE INSIDE BACK COVER FOR NAME, ADDRESS & PHONE NUMBER OF NEAREST DISTRIBUTOR —

Section VI Parts List

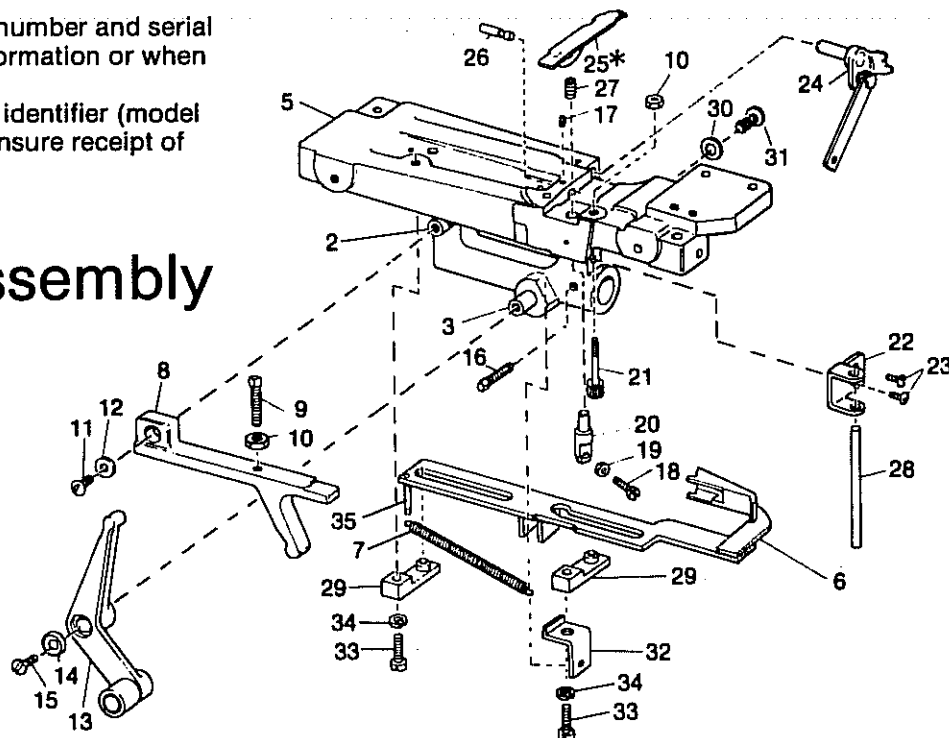
The tying machine is identified by the Model Characteristic Data sheet and serial number stamped on the name plate located on the right side frame of machine.

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

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

If your tying machine is equipped with a frame extension also be provided along with the complete model identifier when ordering replacement parts.

Main Table Assembly



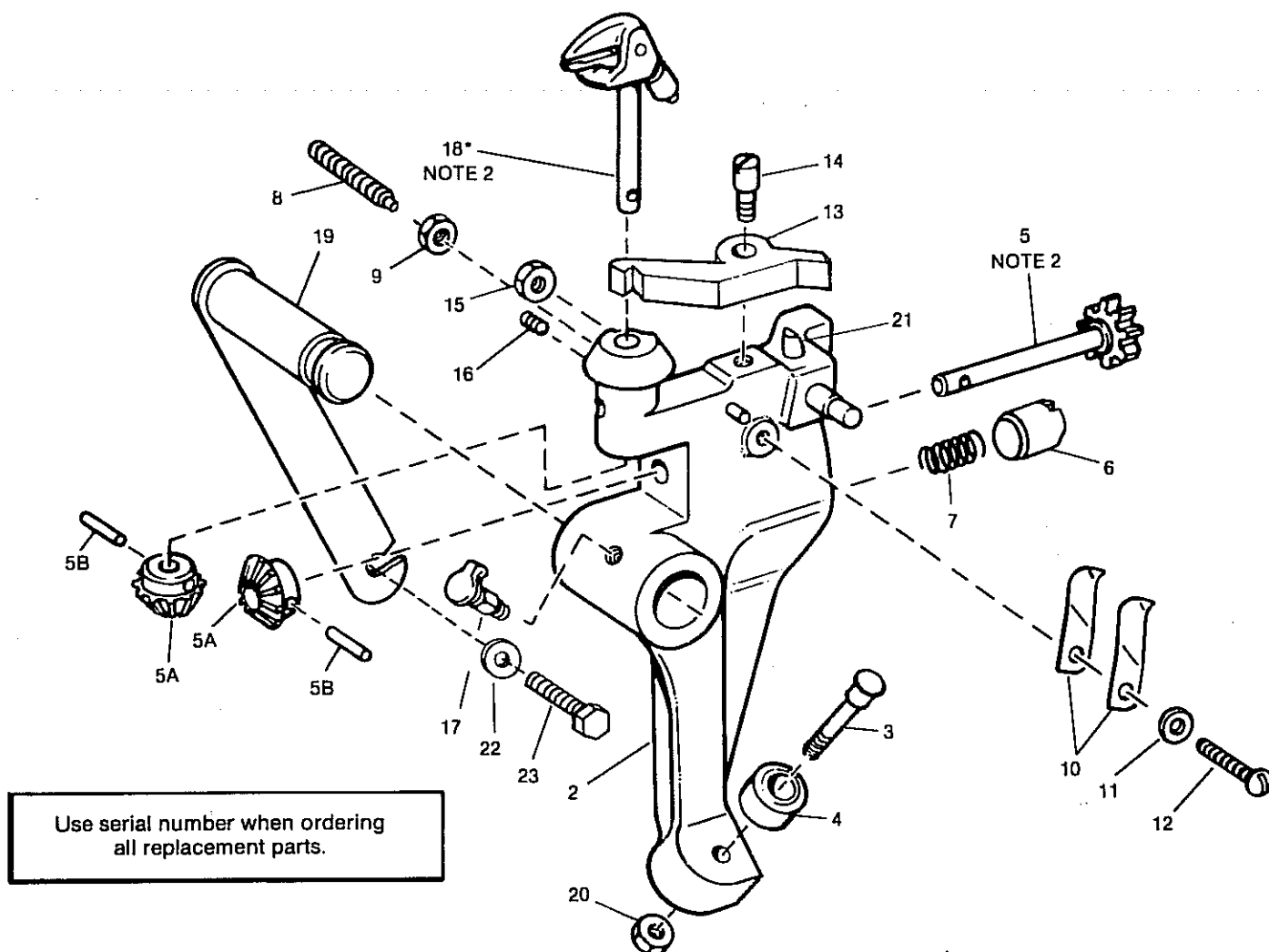
Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
2	081014	Riser Lever Stud	1	17	100121	Screw-Set, socket head, cup point, 8-32 x 1/4 in. long	1
3	081013	Drawslide Lever Stud	1	18	100018	Screw-Knotter release adjusting	1
5	008009	Main Table Sub-Assembly. Note	1	19	100191	Nut-Jam, hex, 1/4-28 NF	1
	008017	Main Table Sub-Assembly (Clamp Model) Note	1	20	081056	Stud-Knotter release	1
6	045034	Drawslide	1	21	100591	Stud-Knotter head stop	1
7	074059	Spring-Drawslide	1	22	083073	Guide-Riser pin	1
8	032003	Riser Lever	1	23	100597	Screw-Round head, self tap 10-24 NC x 5/8 in. long	2
9	100124	Screw-Set, square head, half dog point, 1/4-20 NC x 1 in. long	1	24	032035	Tip-Up Assembly	1
10	100150	Nut-Hex, 1/4-20 NC	2	25*	052—	Stripper	1
11	100098	Screw-Round head, 10-24 NC x 3/8 in. long	1	26	083071	Pin-Stripper pivot	1
12	100131	Washer-Flat, 1/2 o.d. x 7/32 l.d. x 3/64 in. thk.	1	27	074006	Spring-Stripper	1
13	032075	Drawslide Lever Assembly	1	28	083060	Pin-Riser	1
14	100019	Washer-Drawslide Lever	1	29	070049	Drawslide Cap Assembly	2
15	100110	Screw-Flat head, slotted 1/4-20 NC x 1/2 in. long	1	30	100134	Washer-Drawslide Lever	1
16	100596	Screw-Set, square head, cup point, 1/4-20 NC x 3/4 in. long	1	31	100566	Screw Drawslide Lever Stud	1
				32	025288	Bracket Drawslide Spring	2
				33	100104	Drawslide Screws 1/4-20 x 1 in. long Filister Head	2
				34	100135	Washers Split-Lock 1/4 in.	2
				35	101775	6mm Groov Pin	1

— Tying Machine Model Number and Serial Number Required when Ordering.

* Specify Type Twine or Tape Being Used.

NOTE: Sub-Assembly includes Items 2, 3, 10, 16, 17, 18, 19, 20, 21, 22, and 26.

Knotter Head Assembly

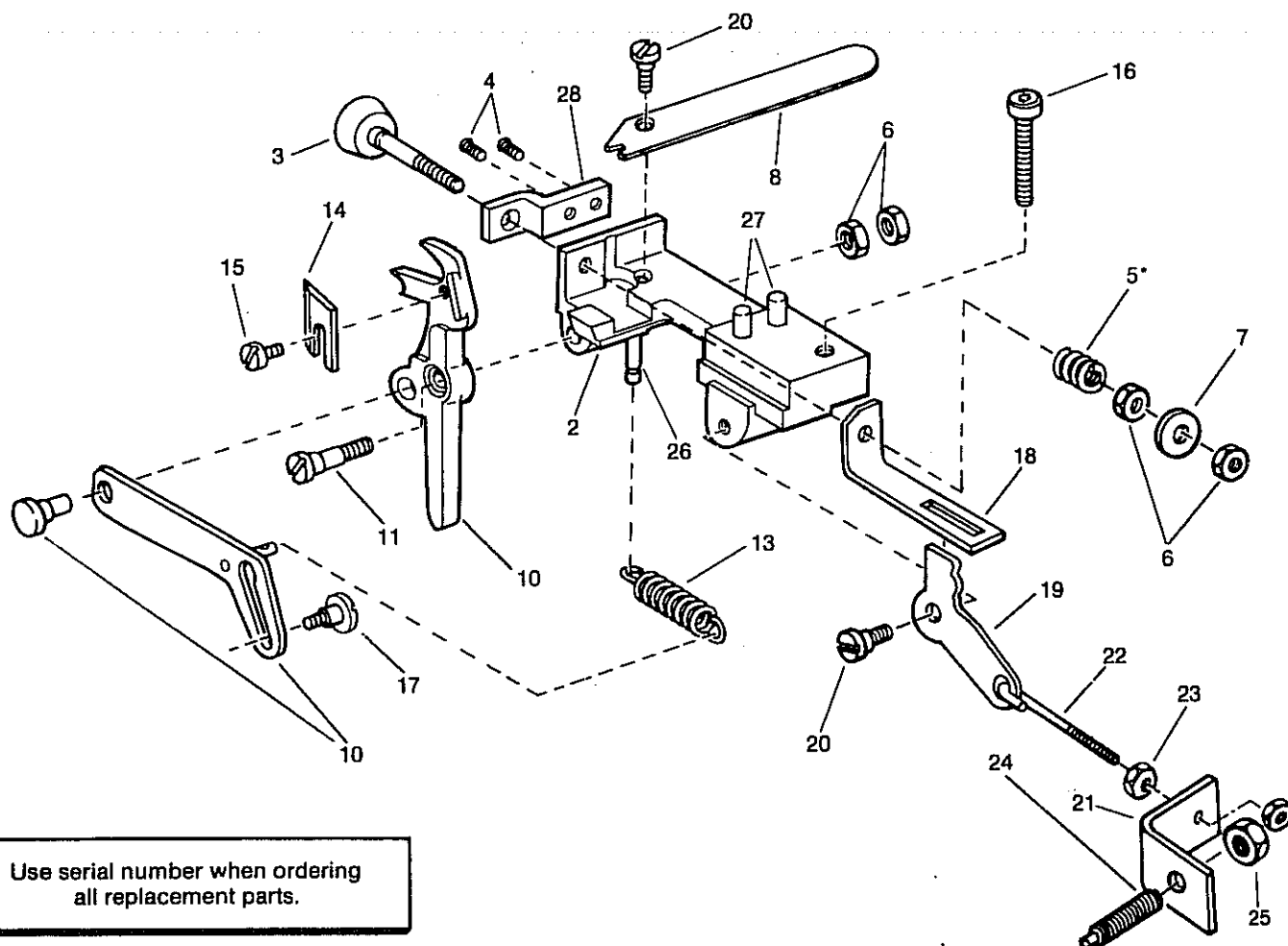


Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1	017—	Knotter Head Assembly	1	11	100131	Washer-Flat, No. 10	1
2	017035	Knotter Head Sub-Assembly (NOTE 1)	1	12	100092	Screw-Round head, 10-24 NC x 1 in. long	1
3	081020	Knotter Head Roller Stud	1	13	032042	Lever-Knotter	1
4	064008	Knotter Head Roller	1	14	100009	Screw-Shoulder, knotter lever	1
5	020157	Star Wheel & Miter Gear Assembly	1	15	100143	Nut-Hex, 10-24 NC	1
5A	020018	Miter Gear	1	16	100120	Screw-Set, socket head, cup point, 10-32 NF x 5/16 in. long	1
5B	100547	Tapper Pin	1	17	100017	Oil Cup	1
6	082003	Plunger-Knotter lock	1	18*	017—	Knotter Body & Miter Gear	1
7	074006	Spring-Knotter Lock	1	19	011004	Pivot Assembly-Knotter Head	1
8	100187	Screw-Set, Knotter lock, half dog point, 1/4-20 NC x 1-1/2 in. long	1	20	100521	Nut 5/16-18 Nylon Insert	1
9	100150	Nut-Hex. knotter lock, 1/4 x 20 NC	1	21	100174	Roll Pin	1
10	074013	Spring-Flat, knotter	2	22	100137	Washer	1
				23	100119	Screw-Hex 5/16-18x1/2 in. long	1

*Specify Type Twine or Tape Being Used.

NOTES: 1. Sub-Assembly includes Items 3, 4, 20 and 21; 2. includes Items 5A and 5B.

Stringholder and Knife Trap Assembly (Dual Tension)



Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1	030—	Stringholder Dual Tension Assembly	1	15	100090	Screw-Binder head, 8-32 NF x 1/4 in. long	1
2△	030142	Stringholder and Pins Sub-Assembly	1	16	101227	Screw Socket Head Cap	1
3	030147	Button-Stringholder	1	17	100011	Screw-Knife trap shoulder	1
4	100489	Screw 10-32 x 3/8	2	18	030084	Slide-Lever	1
5*	074—	Spring	1	19	030083	Pivot	1
6	100144	Nut-Hex, 10-32 NF	4	20	100088	Screw-Pivot	2
7	100033	Washer-Stringholder-Button	1	21	030085	Angle	1
8	032157	Lever-Button Release	1	22	030086	Link	1
10	032159	Knife-Trap & Lever Assembly (short)	1	23	100425	Nut-Hex, 12-24 (2 way lock)	1
11	100646	Screw-Knife trap pivot	1	24	100187	Screw-Set, half dog point 1/4 x 20 NC x 1 in. long	1
13	074011	Spring-Knife trap	1	25	100188	Nut-Hex, 1/4 x 20 ESNA	1
14	021009	Knife-Package (total of 10)	1	26	100158	Spring Pin	1
				27	100569	Grove Pin	2
				28	030145	Stringholder Face	1

*Specify Type Twine or Type Tape Being Used.

△ Includes Items 2, 4, 26, 27 & 28

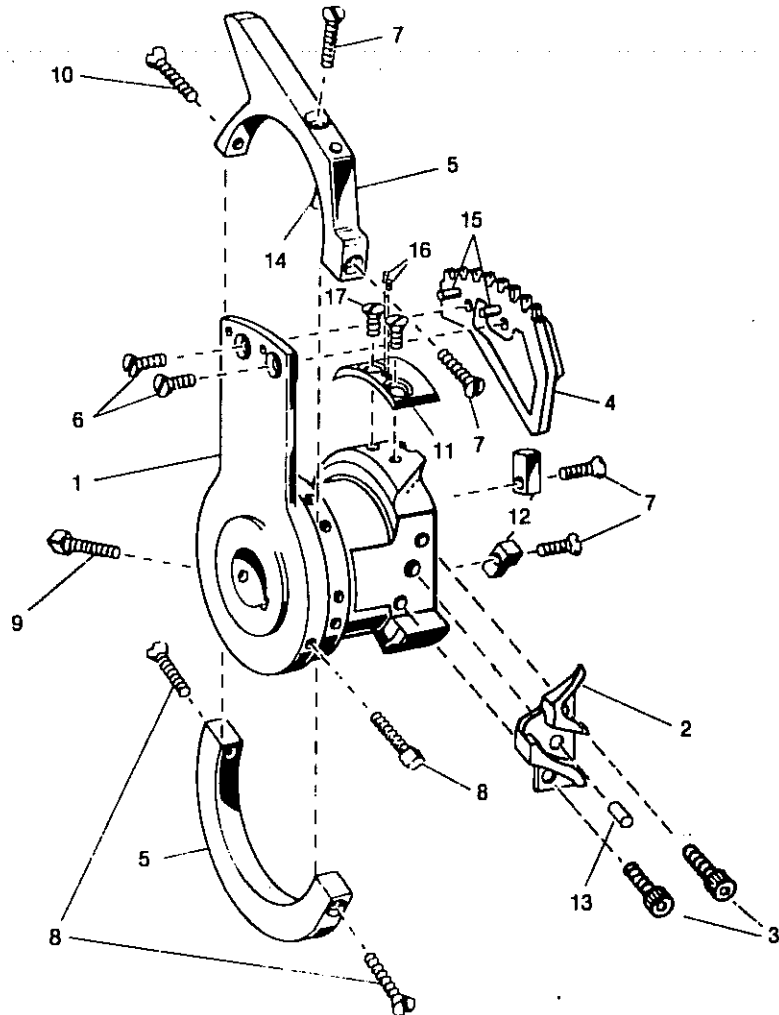
1

2

3

Main Cam Assembly / BT-16

Use serial number when ordering
all replacement parts.



ONE WRAP ONE WAY (1W1W)

009097 see page 25

TWO WRAP ONE WAY (2W1W) & TWO WRAP CROSS TIE (2X)

009095 see page 25

THREE WRAP ONE WAY (3W1W) & THREE WRAP CROSS TIE (2X)

009093 see page 25

Main Cam Assembly

0°-124°

One Wrap One Way

BT-16

Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1Δ	009097	Main Cam Sub-Ass'y.	1	9	100127	Screw-Set, square head, cup point	1
2	009025	Switch-Cam, knotter head (includes pin)	1	10	100095	5/16 NC x 1-1/2 in. long Screw-Machine, flat head	1
3	100109	Screw-Socket head, cap, 1/4-20 x 5/8 in. long	2	11	209007	10-24 x 5/8 in. long Riser Cam	1
4	020135	Rack-Knotter cam	1	12	009026	Clutch-Kickout Block	1
5	009032	Cam-Drawslide (set)	1	13	100161	Groov Pin	1
6	100102	Screw-Machine, flat head 12-24 NC x 5/8 in. long	2	14	100160	Groov Pin	1
7	100326	Screw-Machine, flat head 10-24 NC x 7/8 in. long (six required for cross-tie) only	5	15	100372	Roll Pin	2
8	100128	Screw-Set, square head, cup point 5/16-18 NC x 1-1/4 in. long	1	16	101395	Screw-Soc Set M5 x 6 Lg Cone Pt.	2
				17	100328	#12-24 x 5/8 Flt. Hd.	2

0°-148°
Two Wrap One Way &
Two Wrap Cross Tie

BT-16

Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1Δ	009095	Main Cam Sub-Ass'y.	1	9	100127	Screw-Set, square head, cup point	1
2	009025	Switch-Cam, knotter head (includes pin)	1	10	100095	5/16 NC x 1-1/2 in. long Screw-Machine, flat head	1
3	100109	Screw-Socket head, cap, 1/4-20 x 5/8 in. long	2	11	209007	10-24 x 5/8 in. long Riser Cam	1
4	020135	Rack-Knotter cam	1	12	009026	Clutch-Kickout Block (two required for cross-tie) only	2
5	009078	Cam-Drawslide (set)	1	13	100161	Groov Pin	1
6	100102	Screw-Machine, flat head 12-24 NC x 5/8 in. long	2	14	100160	Groov Pin	1
7	100326	Screw-Machine, flat head 10-24 NC x 7/8 in. long (six required for cross-tie) only	6	15	100372	Roll Pin	2
8	100128	Screw-Set, square head, cup point 5/16-18 NC x 1-1/4 in. long	1	16	101395	Screw-Soc Set M5 x 6 Lg Cone Pt.	2
				17	100328	#12-24 x 5/8 Flt. Hd.	2

0°-104°
Three Wrap One Way &
Three Wrap Cross Tie

BT-16

Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1Δ	009093	Main Cam Sub-Ass'y.	1	9	100127	Screw-Set, square head, cup point	1
2	009025	Switch-Cam, knotter head (includes pin)	1	10	100095	5/16 NC x 1-1/2 in. long Screw-Machine, flat head	1
3	100109	Screw-Socket head, cap, 1/4-20 x 5/8 in. long	2	11	209007	10-24 x 5/8 in. long Riser Cam	1
4	020135	Rack-Knotter cam	1	12	009026	Clutch-Kickout Block (two required for cross-tie) only	2
5	009078	Cam-Drawslide (set)	1	13	100161	Groov Pin	1
6	100102	Screw-Machine, flat head 12-24 NC x 5/8 in. long	2	14	100160	Groov Pin	1
7	100326	Screw-Machine, flat head 10-24 NC x 7/8 in. long (six required for cross-tie) only	6	15	100372	Roll Pin	2
8	100128	Screw-Set, square head, cup point 5/16-18 NC x 1-1/4 in. long	1	16	101395	Screw-Soc Set M5 x 6 Lg Cone Pt.	2
				17	100328	#12-24 x 5/8 Flt. Hd.	2

—Tying Machine Model Number and Serial Number Required When Ordering.
ΔItem #1 Includes Items: #2, 3, 4, 12, 14, 17 & 18

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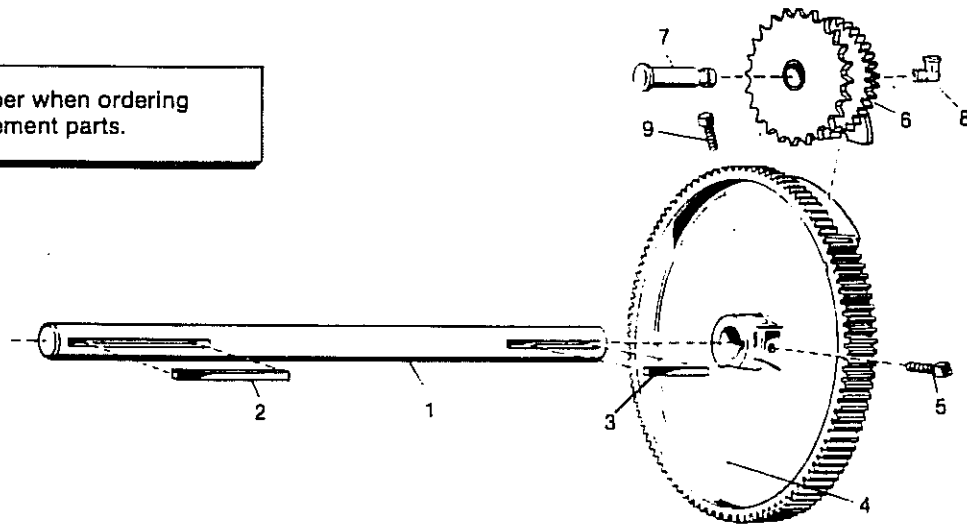
all replacement parts.

Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1	032018	Lever-Clutch Kickout	1	6A	011006	Trip-Bell Crank	1
2	100005	Screw-Trip Rod	3	6B	060003	Wedge-Kickout lever	1
3	100151	Nut-Hex, 1/4-28 NF	3	6C	081002	Stud-Kickout lever wedge	1
4	100135	Washer-Split Lock 1/4	3	6D	100158	Groov Pin	1
5	074005	Spring-Trip, Return	2	7	030016	Anchor Spring	1
6	011007	Bell Crank Trip with lever, stud and pin	1	8	006099	Trip Rod	1
				9	100157	Groov Pin	2

—**Tying Machine Model and Serial Number Required When Ordering.**

Mainshaft, Main Gear/Chain Gear Assemblies BT-16

Use serial number when ordering
all replacement parts.



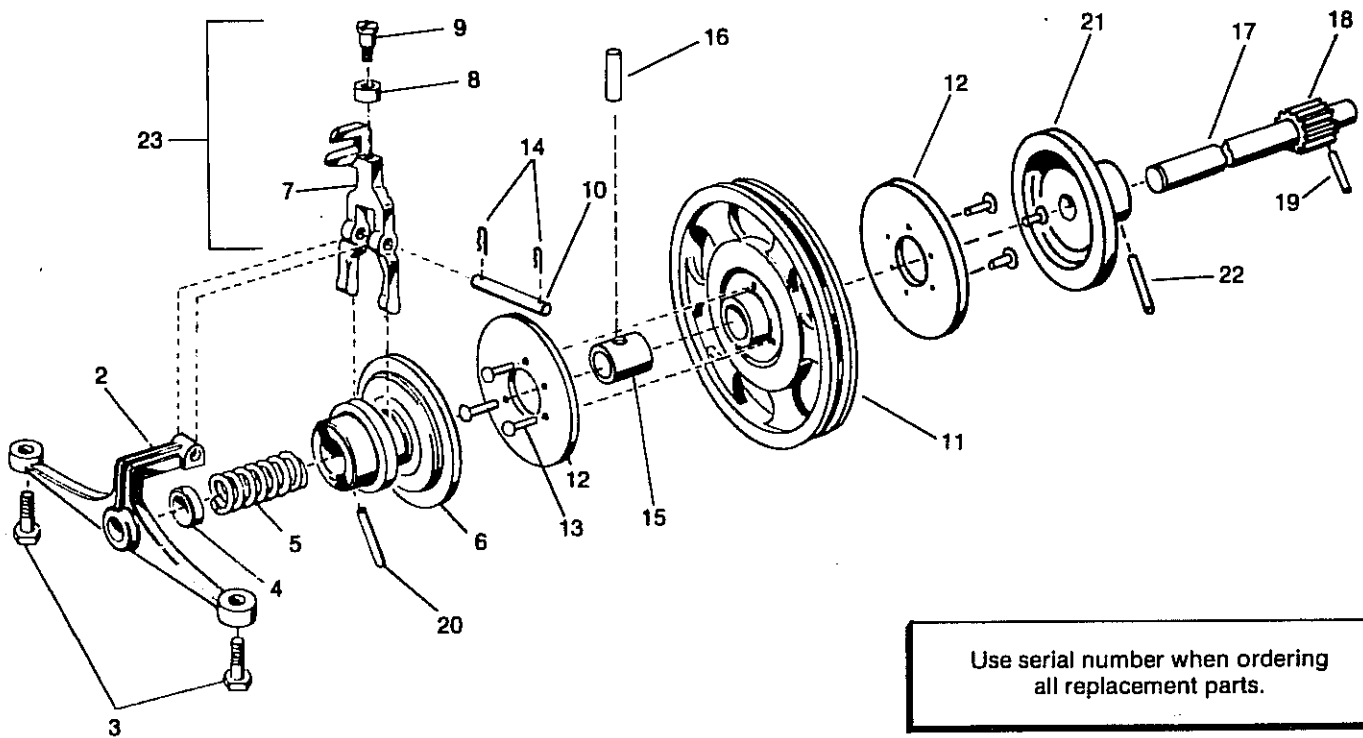
LEGEND:

1W1W = One Wrap One Way
2W1W = Two Wrap One Way
2X = Two Wrap Cross-Tie
3W1W = Three Wrap One Way
3X = Three Wrap Cross-Tie

Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1W1W	2W1W	2X		1W1W	2W1W	2X	
1	012018	Main Shaft	1	2	083057	Key-Cam Wheel	1
3W1W	3X			3	083074	Key-Main Gear	1
1	012039	Main Shaft	1	5	100127	Screw-Set Square Head, cup point, 5/16-18 x 1-1/4 in. long	1
1W1W				7	081072	Stud Chain Gear	1
4	020004	Main Gear	1	8	100087	Oil Cup-90°	1
2W1W	2X	3W1W 3X		9	100128	Screw-Set Square Head, Cup point 5/16-18 x 1-1/4 in. long.	1
4	020006	Main Gear	1	3W1W	3X		
1W1W	2W1W	2X		2	083057	Key-Cam Wheel	1
6	020243	Chain Gear Assembly	1	3	083074	Key-Main Gear	1
3W1W	3X			5	100127	Screw-Set Square Head, cup point, 5/16-18 x 1-1/4 in. long	1
6	020189	Chain Gear Assembly	1	7	081032	Stud Chain Gear	1
				8	100087	Oil Cup-90°	1
				9	100128	SCR Set Sq. Hd. cup point 5/16-18 x 1 in. long	1

—Tying Machine Model and Serial Number Required When Ordering.

Clutch Assemblies

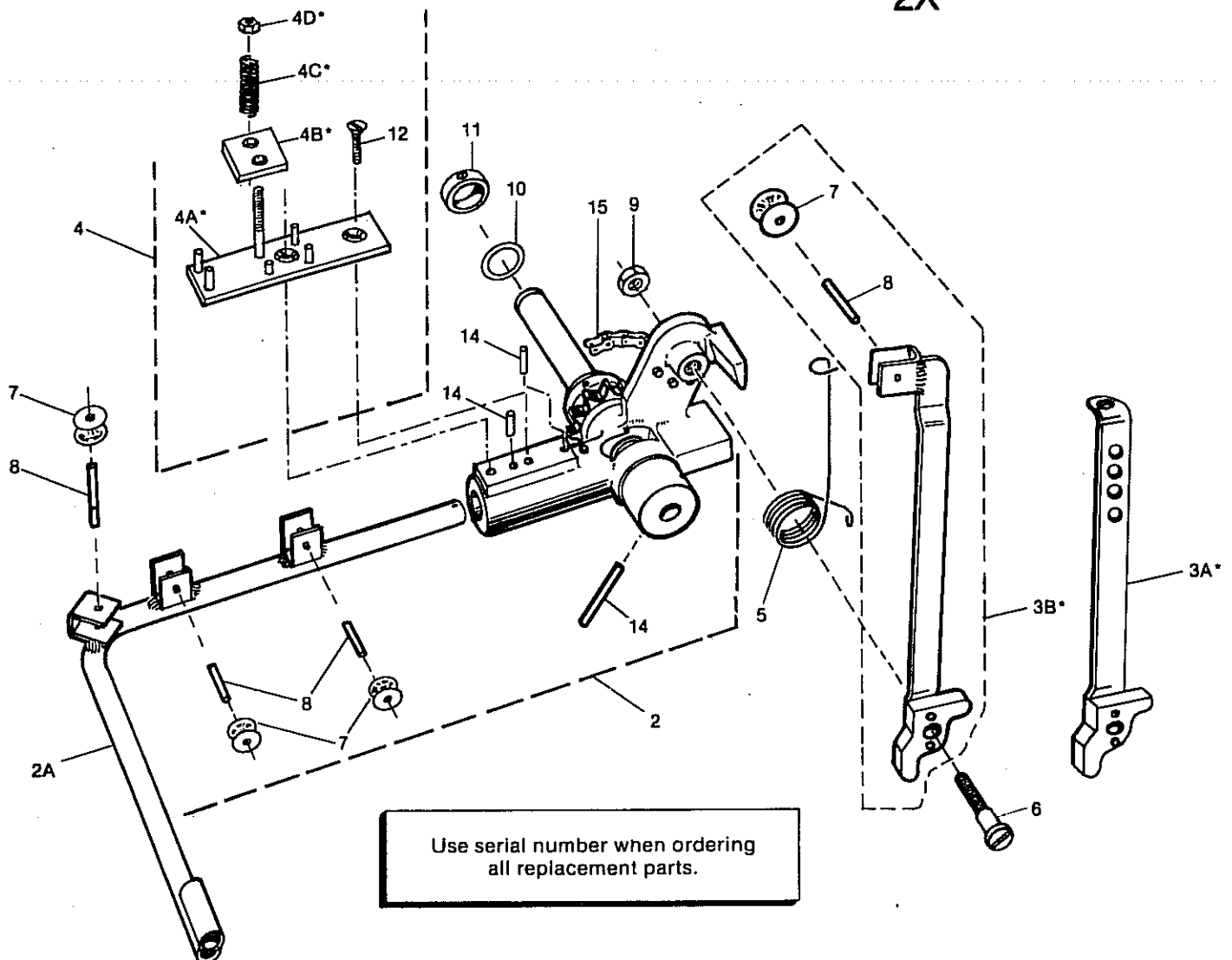


Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
2	013096	Lower-Bearing	1	13	100181	Drive Screw	6
3	100115	Screw-Hex, head, 5/16-18 x 1 in. long	2	14	100633	Hitch Pin	2
4	094005	Collar Clutch Shaft End	1	15	013099	Bearing Clutch	1
5	074003	Spring Clutch	1	16	100601	Roll Pin	1
6	024002	Clutch Member-Outer	1	17	012009	Shaft-Clutch, Double	1
7	071001	Fork-Clutch	1	18	020020	Pinion-Clutch Shaft	1
8	064002	Roller-Clutch Fork	1	19	100171	Taper Pin, No. 3 x 1-1/4 in. long	1
9	100002	Screw-Clutch Fork Roller	1	20	083075	Pin-Clutch Shaft End Collar	1
10	083056	Pin-Clutch Fork Pivot	1	21	024001	Clutch Member-Inner	1
11	019093	Pulley	1	22	100169	Taper Pin, No. 3 3 x 1-3/4 in. long	1
12	024003	Clutch Disc	2	23	071004	Clutch Fork Assembly	1

— Tying Machine Model Number and Serial Number Required When Ordering.

Twine Arm Assembly / BT-16

1W1W
2W1W
2X



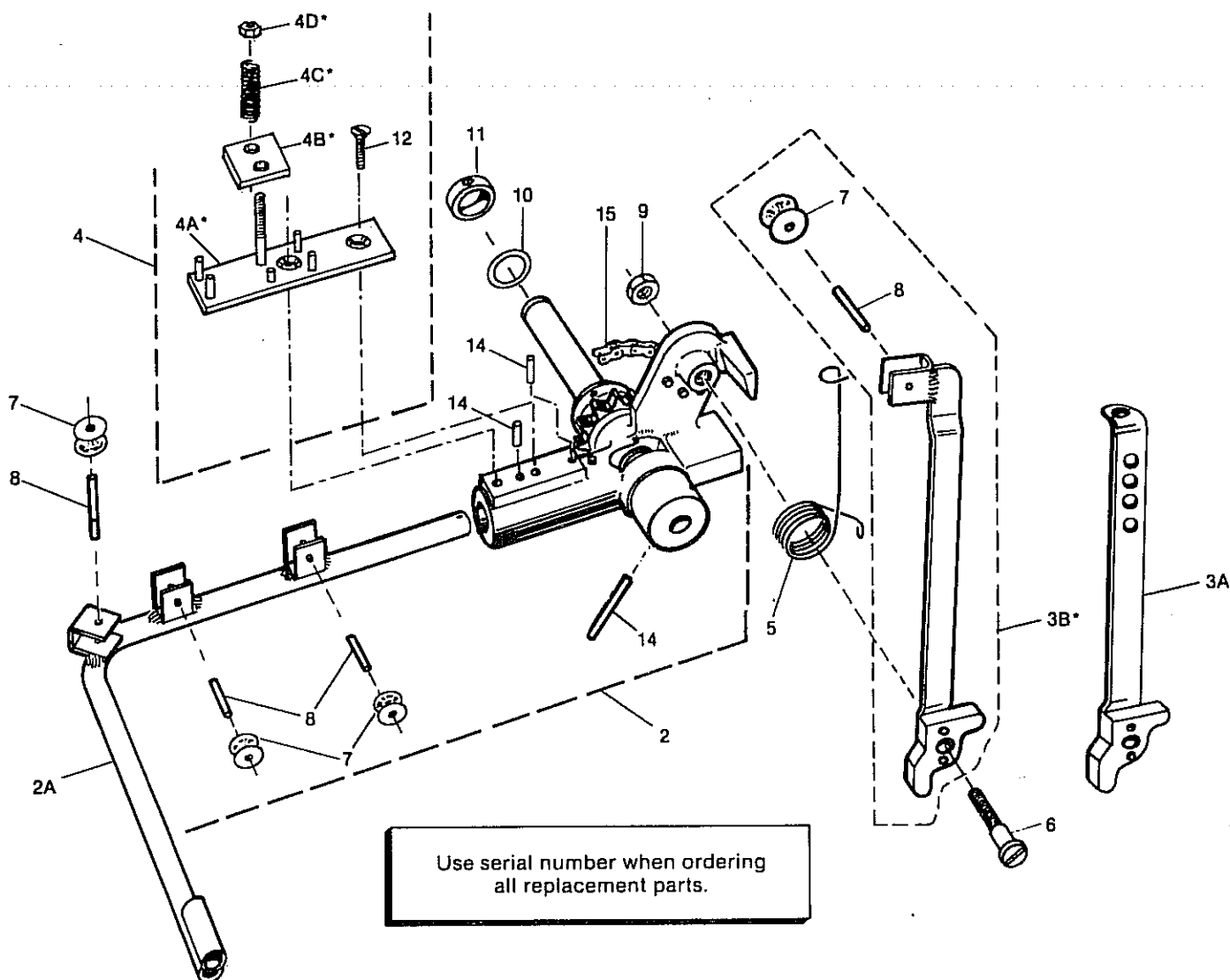
Use serial number when ordering
all replacement parts.

Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
2	035-	Twine Arm Assembly		5	274001	Spring-drawback torsion	1
2Δ	035107	Hub, quill, sprocket & twine arm assembly	1	6	101876	Screw-drawback Lever Pivot	1
2A	033182	Twine Arm	1	7	064037	Roller	3 or 4
3A*	032189	Drawback lever assembly- TWINE for twine	1	8	100649	Pin-spring 5/32" dia. x 3/4"	3 or 4
3B*	032193	Drawback lever assembly- TAPE for poly tape	1	9	101518	Nut-hex M8 x 1.25	1
4	130226	Tension Assembly	1	10	100022	Washer-twine arm	1
4A*	130227	Tension Plate Sub-Assembly	1	11	100052	Retaining ring (Truarc 5108-75)	1
4B*	130224	Plate, Tension Pressure	1	12	101323	Screw-socket flat head	2
4C*	074062	Spring, Tension	1	14	100295	Roll pin-3/16" dia x 1-1/2"	3
4D*	100586	Nut, 2-way lock	1	15	135025	Chain	1

Δ Include all above items #8 & #9
*Specify type twine or Poly tape used
Note: Assemble with Loctite No. 242

Twine Arm Assembly / BT-16

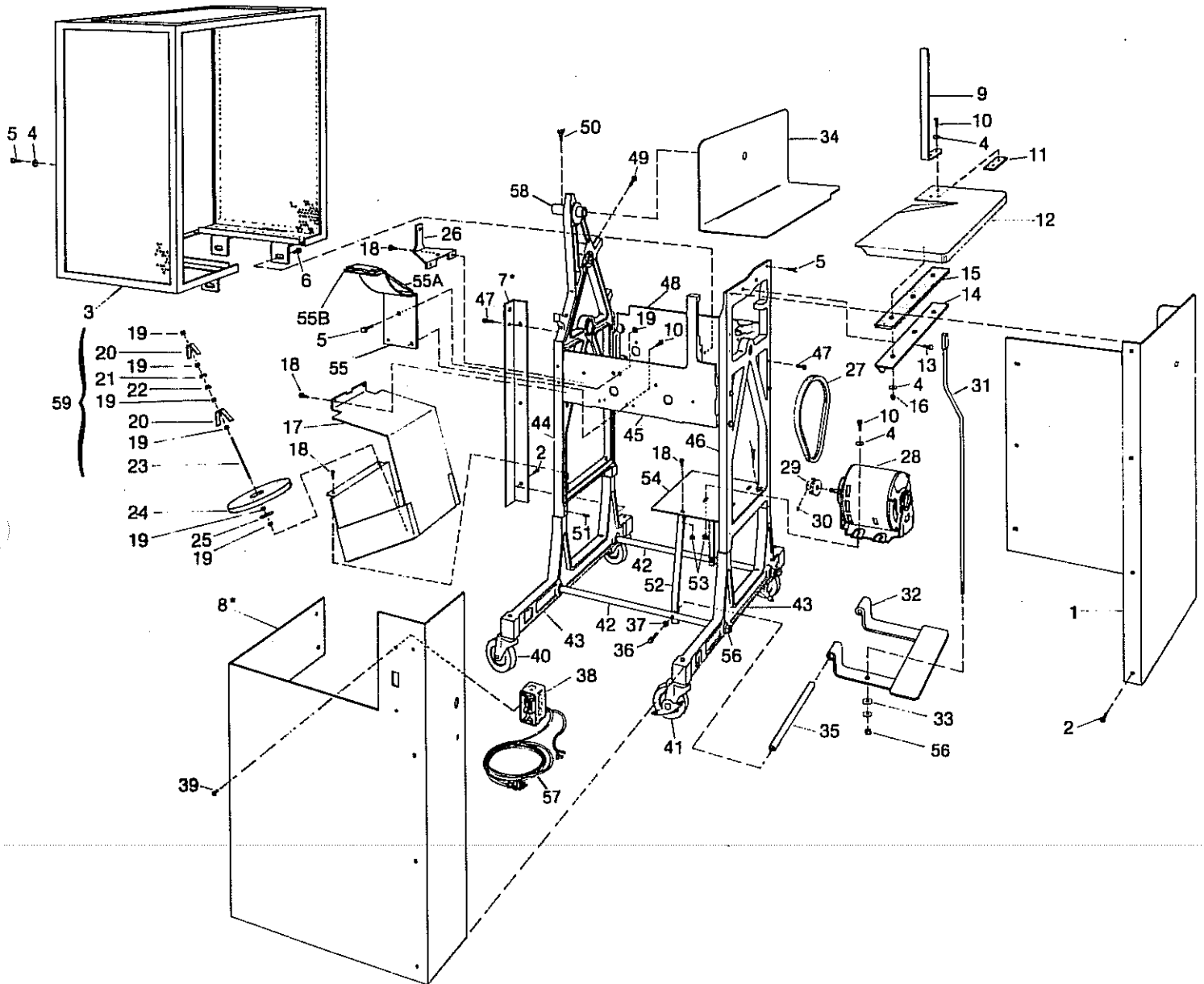
3W1W
3X



Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
2	035—	Twine Arm Assembly		6	101876	Screw-drawback Lever Pivot	1
2A	033216	Twine Arm	1	7	064037	Roller	3 or 4
3A*	032189	Drawback lever assembly- TWINE for twine	1	8	100649	Pin-spring 5/32" dia. x 3/4"	3 or 4
3B*	032193	Drawback lever assembly- TAPE for poly tape	1	9	101518	Nut-hex M8 x 1.25	1
4	130226	Tension Assembly	1	10	100022	Washer-twine arm	1
4A*	130227	Tension Plate Sub-Assembly	1	11	100052	Retaining ring (Truarc 5108-75)	1
4B*	130224	Plate, Tension Pressure	1	12	101323	Screw-socket flat head	2
4C*	074062	Spring, Tension	1	14	100295	Roll pin-3/16" dia x 1-1/2"	3
4D*	100586	Nut, 2-way lock	1	15	135025	Chain	1
5	274001	Spring-drawback torsion	1				

*Specify type twine or Poly tape used
Note: Assemble with Loctite No. 242

Miscellaneous



Use serial number when ordering
all replacement parts.

Miscellaneous / BT-16

1W1W
2W1W
2X

Index Number	Part Number	Description	Number Required	Index Number	Part Number	Description	Number Required
1*	038295	Panel Ass'y.-Lower Front & Right Side	1	34	010160	Back Table Assembly	1
2	100255	Screw-Pan Head Slotted-No. 8-32 N.C. x 1/2 Long	7	35	006100	Rod-Trip Pedal Pivot	1
3	132261	Twine Arm Guard	1	36	100238	Screw-Hex. Head Cap-1/4-20 N.C. x 1-1/4 Long	2
4	100280	Washer-Flat-5/16 I.D.	10	37	100135	Washer-Split Lock-1/4 I.D.	2
5	100115	Screw-Hex. Head Cap-5/16-18 N.C. x 1" Long	4	38	050286	Cord Set Assembly-Grounded (3 Wire-115V/230V-60Hz)	1
6	100298	Screw-Flanged Hex. Head Cap-1/4-20 N.C. x 1/2 Long	4	38A	050038	Cord	1
7*	025410	Whiz-Loc Mounting Bracket Ass'y.-Lower	1	38B	050232	Switch	1
8*	038294	Right Rear, Panel Assembly-Lower	1	38C	050052	Relief-Cord	1
9	127043	Standard	1	38D	050285	Box-Electrical Assembly	1
10	100107	Screw-Hex. Head Cap-1/4-20 N.C. x 5/8	8	38E	100097	Screw	1
11	077013	Pad-Front Table Short	1 (REF.)	38F	100131	Washer	1
12	007032	Front Table	1 (REF.)	38G	100132	Washer	1
13	100119	Screw-Hex. Head Cap-5/16-18 N.C. x 1/2 Long	2	38H	100143	Nut	1
14	025362	Bracket-Front Table	1	39	100101	Screw-Round Head Slotted-No. 10-32 N.F. x 1/2 Long	2
15	077012	Pad-Front Table Long	1 (REF.)	40	135047	Caster-3" Diameter	2
16	100188	Nut-Hex-1/4-20 N.C.-ESNA	3	41	135051	Caster-3" Diameter with locking device	2
17	110050	Twine Enclosure Assembly	1	42	006064	Base Tie Rod-Standard Side Frame	2
18	100490	Screw-Button Head Socket Cap-1/4-20 N.C. x 1/2 Long	8	43	005082	Base-High	2
19	100284	Nut-5/16-18 N.C.-Twin Whiz-Loc	7	44	001018	Frame-Rear	1
20	070075	Twine Cone Pilot	2	45	003004	Frame-Left Side	1
21	025350	Bracket Twine Cone Holder	1	46	002062	Frame-Front	1
22	100285	Wing Nut-5/16-18 N.C.-Type A	1	47	100113	Screw-Hex. Head Cap-5/16-18 N.C. x 1-10, Long	8
23	081071	Twine Cone Pilot Stud	1	48	004001	Frame-Right Side	1
24	077016	Pad-Twine Cone	1	49	100128	Screw-Sq. Head Set-5/16-18 N.C. x 1-1/4 Long-Knurled Cup Point	1
25	100279	Washer-Fender 11/32 I.D.	1	50	100017	Oil Cup	1
26	025361	Bracket-Rear Twine Guide	1	51	100130	Screw-Socket Set-5/16-18 N.C. x 5/16	2
27	040003	V-Belt 2330 (33" Circumference)	1	52	025075	Bracket-Motor Mounting Plate	2
28	039001	Motor-Single Phase (115V, 60Hz, 1/4 H.P., 1725 R.P.M.)	1	53	100286	Nut-Flanged Hex.-1/4-20 N.C.-Whiz-Loc	6
29	019—	Motor Sheave	1	54	130204	Plate-Motor Mounting	1
30	100262	Screw-Socket Set-5/16-18 N.C. x 3/8 Long-Knurled Cup Point	1 (REF.)	55	014021	Brake Assembly	1
		Purchase with Motor Sheave		55A	077014	Pad-Brake	1
31	006099	Trip Rod Assembly-High Base	1	55B	100178	Rivet	4
32	059027	Trip Pedal Assembly	1	56	100152	Nut-3/8-16 Hex Heavy	5
33	100420	Washer-Flat Wrought-7/16 I.D.	3	57	050029	Cable Tie-6-3/4" Lg. Stand. Size	2 (REF.)
				58	013006	Bronze Bearing	1
				59	070076	Twine Holder Assembly	1

△ Order Items #11 and #15 when Ordering Item #12
 * Includes 077043 Pads as Requested
 ** Includes 077049 Pad as Requested

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St. Louis, MO 63139
(314) 647-0275

NORTHWEST MARKING SYSTEMS
2135 SE Division Street
Portland, OR 97202
(503) 235-7002

WESTERN PAPER COMPANY
516 South 18 South West
Billings, MT 59103
(406) 656-7325

EDGERTON BECKER, INC.
8509 Rainswood Drive
Landover, MD 20785
(202) 322-9088

OHIO ADDRESSING MACH. CO.
3040 Prospect Avenue
Cleveland, OH 44114
(216) 391-3000

K. YAMADA DISTRIBUTING
747 Umi Street
Honolulu, HI 96819
(808) 847-3221

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

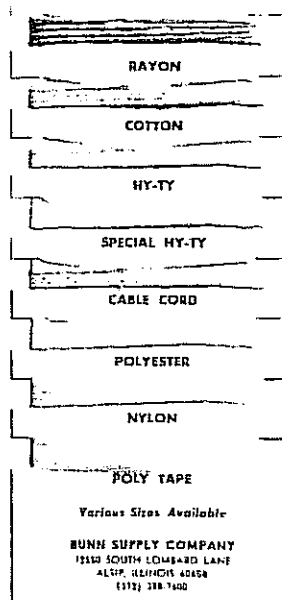
1



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. BUNN also has heavy-duty plastic twines for hand tying. Soft, smooth, kind to hands, and comes in handy container-feed cartons.

2



Use the right twine for the job

Rayon A continuous filament, high tensile strength fiber 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.

Cable Cord A special twisted cotton twine with excellent elastic properties for packaging.

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

Nylon A coarse grade industrial twine with unexcelled properties of elasticity, strength and knot holding capabilities of quality twine.

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.