

OPERATION, PARTS AND SAFETY MANUAL



SIGNODE®

BTS-16/19/25

**TENSION-WELD®
STRAPPING TOOL**

NOTE: Fully charge battery before first use of tool.

IMPORTANT! DO NOT DESTROY

**It is the customer's responsibility to
have all operators and servicemen
read and understand this manual.**

Contact your local Signode representative
for additional copies of this manual.

READ ALL INSTRUCTIONS BEFORE OPERATING THIS SIGNODE PRODUCT

SIGNODE • 3620 WEST LAKE AVENUE • GLENVIEW, ILLINOIS 60025 U.S.A.

WARNING

READ THESE INSTRUCTIONS CAREFULLY. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN SEVERE PERSONAL INJURY.

GENERAL SAFETY CONSIDERATIONS

1. STRAP BREAKAGE HAZARD

Improper operation of the tool or sharp corners on the load can result in strap breakage during tensioning, which could result in the following:

- A sudden loss of balance causing you to fall.
- Both tool and strap flying violently towards your face.

Failure to place the strap properly around the load or an unstable or shifted load could result in a sudden loss of strap tension during tensioning. This could result in a sudden loss of balance causing you to fall.

Read the tool's operating instructions. If the load corners are sharp use edge protectors. Place the strap correctly around a properly positioned load.

- Positioning yourself in-line with the strap, during tensioning and sealing, can result in severe personal injury from flying strap or tool. When tensioning or sealing, position yourself to one side of the strap and keep all bystanders away.
- Using strap not recommended for this tensioner can result in strap breakage during tensioning. Use the correct Signode products for your application.

2. TRAINING

This tool must not be used by persons not properly trained in its use. Be certain that you receive proper training from your employer. If you have any questions contact your Signode Representative.

3. EYE INJURY HAZARD

Failure to wear safety glasses with side shields can result in severe eye injury or blindness. Always wear safety glasses with side shields which conform to ANSI Standard Z87.1 or EN 166.



4. FALL HAZARD

Maintaining improper footing and/or balance when operating the tool can cause you to fall. Do not use the tool when you are in an awkward position.

5. CUT HAZARD

Handling strap or sharp parts could result in cut hands or fingers. Wear protective gloves.



6. TOOL CARE

Take good care of the tool. Inspect and clean it daily, lubricate it weekly and adjust when necessary. Replace any worn or broken parts.

7. WORK AREA

Keep work areas uncluttered and well lighted.

Several types of strap can be used with this tool. Use the correct Signode products for your application. If you need help contact your Signode Representative.

CUTTING TENSIONED STRAP

Use only cutters designed for cutting strap; never use claw hammers, crowbars, chisels, axes or similar tools. Such tools will cause the strap to fly apart with hazardous force. Before using any Signode product, read its Operation and Safety Manual.

WARNING

SAFETY PROCEDURES FOR ELECTRIC TOOLS

1. **GUARD AGAINST ELECTRIC SHOCK**
2. **CONSIDER WORK AREA ENVIRONMENT**
 - Try not to operate tool in damp or wet locations.
 - Prevent body contact with grounded surfaces, such as pipes, radiators, ranges, refrigerator enclosures.
 - When tool is used outdoors, use only extension cords intended for outdoors and so marked.
 - Wear rubber gloves and non-skid footwear when working outdoors.
 - Do not expose power tools directly to rain.
 - Never operate tool in presence of gases or flammable liquids.
3. **Never allow visitors to contact tool or extension cords. All visitors should be kept away from work area.**
4. **DO NOT ABUSE TOOL**
 - Keep handle dry, clean and free from oil and grease.
 - Never carry tool by cord or yank it to disconnect from receptacle.
 - Always keep cord from heat, oil and sharp edges.
 - Always store idle tool in dry, high or locked-up place.
 - Always disconnect tool when not in use or before servicing.
 - To avoid unintentional starting, never carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
5. **MAINTAIN TOOL WITH CARE**

Check Damaged Parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other condition that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by authorized service center. Do not use tool if switch does not turn it on and off.

 - When servicing double insulated tool, use identical replacement parts.
 - Keep tool clean for better and safer performance.
 - Inspect tool cord periodically and, if damaged, have repaired by authorized service facility.
 - Inspect extension cord periodically and replace if damaged.

SAFETY PROCEDURES FOR TOOL OPERATION

Before using this tool, read its Operation and Safety instructions. This tool is a Tension Weld® type sealer. A properly made joint will appear as shown in the illustration. If the joint does not appear as shown, then the operator must proceed as follows:

- A. Ensure that the tools operating instructions are being followed before applying another strap.
- B. Cut the strap off and apply another.



If the joint still does not appear as shown, then inspect the tool for worn and/or damaged parts. Replace tool parts as needed. **NEVER HANDLE OR SHIP ANY LOAD WITH IMPROPERLY FORMED JOINTS.** Misformed joints may not secure the load and could cause serious injury. Tuck strap end back into the dispenser when not in use.

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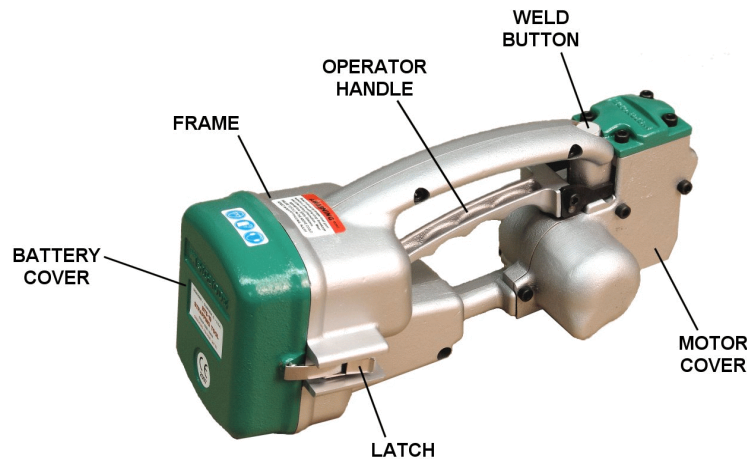
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SPECIFICATIONS

MODEL	STRAP			OPERATING VOLTAGE	RECOMMENDED TENSIONER
	TYPE	WIDTH	THICKNESS		
BTS-16	High Strength Tenax	16mm (.629")	0.030" to 0.044" (0.76-1.11mm)	14.4 VDC	Signode PT-16
BTS-19		19mm (.748")	0.045" to 0.055" (1.14-1.40mm)		Signode PT-19
BTS-25		25mm (1.000")	0.045" to 0.055" (1.14-1.40mm)		Signode PT-25

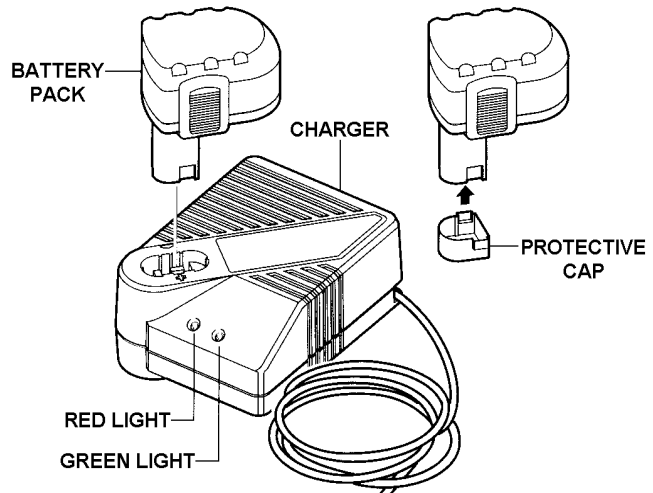
MAJOR COMPONENTS



BATTERY INFORMATION

Before attempting to use this tool make sure the batteries are properly charged. A discharged battery may result in a poor weld or no weld condition.

1. The battery pack accepts only about 80% of its maximum capacity with its first few charge cycles. However, after the first few charge cycles, the battery will charge to full capacity.
2. The charger was designed to fast charge the battery only when the battery temperature is between 40°F (4°C) and 105°F (41°C).
3. A substantial drop in operating time per charge may mean that the battery pack is nearing the end of its life and should be replaced.
4. If you anticipate long periods (i.e. a month or more) of non-use of your tool, it is best to run your tool down until it is fully discharged before storing your battery pack. After a long period of storage, the capacity at first recharge will be lower. Normal capacity will be restored in two or three charge/discharge cycles. Remember to unplug charger during storage period.
5. If battery does not charge properly:
 - A. Check for voltage at outlet by plugging in some other electrical device.
 - B. Check to see if outlet is connected to a light switch which turns power "off" when lights are turned off.
 - C. Check battery pack terminals for dirt. Clean with cotton swab and alcohol if necessary.



BATTERY INFORMATION, Continued

INDICATORS, SYMBOLS AND MEANING

If the indicator lights are "OFF", the charger is not receiving power from power supply outlet.
If the green indicator light is "ON", the charger is plugged in but the battery pack is not inserted, or the battery pack is fully charged and is being trickle charged.

If the green indicator light is "BLINKING", the battery pack is being fast-charged. Fast-charging will automatically stop when the battery pack is fully charged.

If the red indicator light is "ON", the battery pack is too hot or cold for fast-charging. The charger will switch to trickle charge, until a suitable temperature is reached, at which time the charger will switch automatically to fast-charging.

If the red indicator light is "BLINKING", the battery pack cannot accept a charge or the contacts of the charger or battery pack are contaminated. Clean the contacts of the charger or battery pack only as directed in these operating instructions or those supplied with your tool or battery pack.

Plug charger cord into your standard power outlet. Before inserting battery pack, remove protective cap, then insert battery pack into charger. The charger's green indicator light will begin to "BLINK". This indicates that the battery is receiving a fast charge. Fast-charging will automatically stop when the battery pack is fully charged.

When the indicator light stops "BLINKING" (and becomes a steady green light) fast charging is complete. The battery pack may be used even though the light may still be blinking. The light may require more time to stop blinking depending on temperature. When you begin the charging process of the battery pack, a steady red light could also mean the battery pack is too hot or too cold.

The purpose of the green light is to indicate that the battery pack is fast-charging. It does not indicate the exact point of full charge. The light will stop blinking in less time if the battery pack was not completely discharged.

When charging several batteries in sequence, the charge time may slightly increase.
When the battery pack is fully charged, unplug the charger (unless you're charging another battery pack) and slip the battery pack back into the tool.

To prevent fire or injury when batteries are not in tool or charger, always place protective cap onto end of battery pack.

INSTALLING A BATTERY

1. Release the latch that secures the battery cover. Open the battery cover.
2. Insert the battery into the BTS. Firmly push the battery in until fully seated.
3. Close and latch the cover.

NOTE: Do not operate tool with battery cover open.
Occasionally inspect the battery compartment for moisture.
Inspect the battery cover gasket for wear, replace if needed.



OPERATING INSTRUCTIONS

WARNING

**Wear safety glasses. Stand to one side of the strap when tensioning.
Make sure all bystanders are clear before proceeding.**

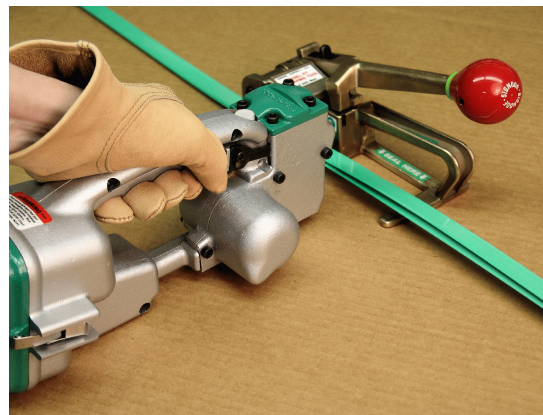
PLEASE NOTE: Do not operate tool without strap, as damage to the tool may occur.

1. Using a Signode PT manual strap tensioner tool, encircle the package with strap and tension the strap as required.

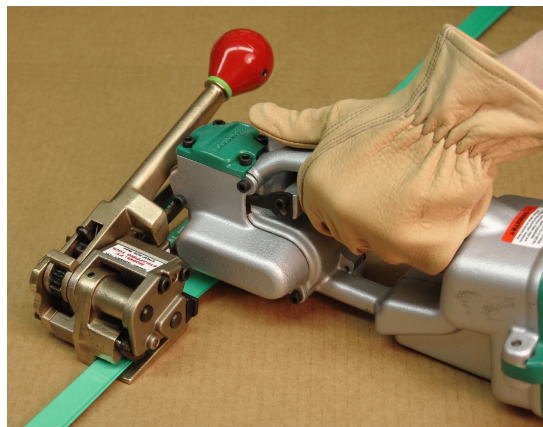
Refer to the Signode PT tool's operation, parts and safety manual for proper use of the tool.



2. Squeeze the operator handle of the BTS to open the upper welding gripper.

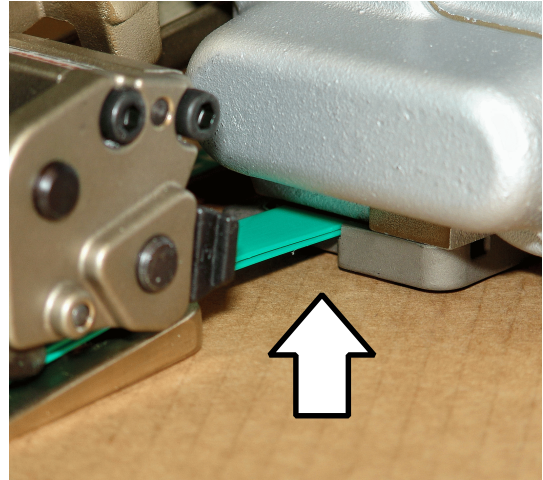


3. While holding the operator handle, align the BTS with the tensioner as shown, slide the nose of the BTS tool over the upper and lower straps.



OPERATING INSTRUCTIONS, Continued

4. Push the BTS tool all the forward so that the straps are fully seated into the base of the tool as shown.

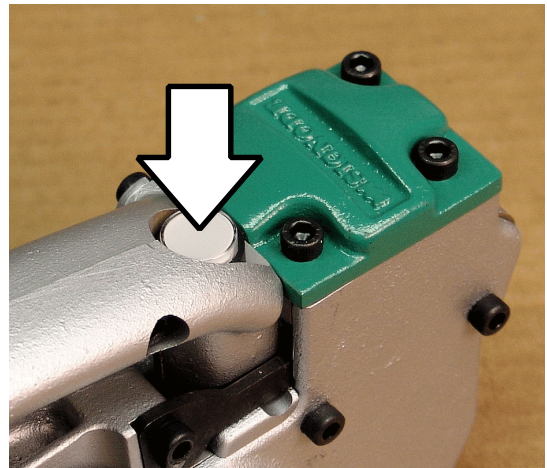


5. Release the operator handle to secure the strap in the tool. Press the weld button on the top of the tool.

The BTS will then weld the strap together. As the straps are welded together the BTS will also cut off the top strap.

While operating, the weld button will glow the color Red. Once the welding process has been completed the weld button will continue to glow Red indicating the wait period before removing the tool.

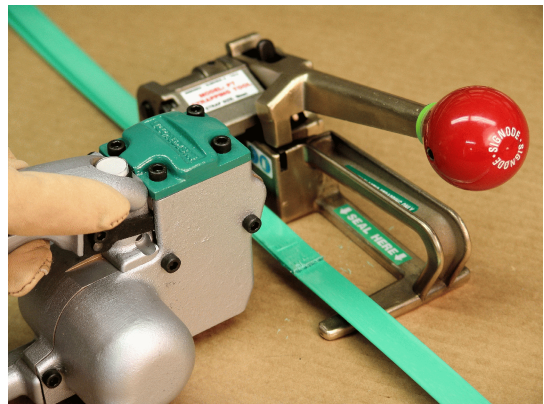
NOTE: If the weld button immediately flashes Red and the tool does not function the battery cell needs to be charged.



6. Once the weld button begins to flash Green in color, squeeze the operator handle to open the tool and remove the tool from the strap.

Continue to remove the strap tensioner from the strap.

Inspect the strap joint for proper formation using the information found on the next page of this manual



STRAP JOINT INSPECTION

This tool is a Tension Weld® type sealer. A properly made joint will appear as shown in the illustration. If the joint does not appear as shown, then the operator must proceed as follows:

1. Ensure that the tool operating instructions are being followed before applying another strap.
2. Cut the strap off and apply another.

A good weld will show some material displacement along the edges. The welded area should extend the full length and width of the gripper impression.



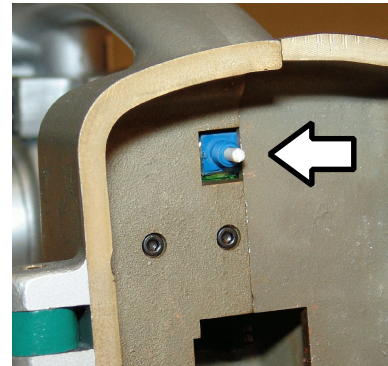
If the joint still does not appear as shown, then inspect the tool for worn and/or damaged parts. Replace tool parts as needed. **NEVER HANDLE OR SHIP ANY LOAD WITH IMPROPERLY FORMED JOINTS.** Misformed joints may not secure the load and could cause serious injury.

WELD TIME ADJUSTMENT

Weld time duration has been factory adjusted to provide acceptable weld strength when using High Strength Tenax (polyester) type strap. Weld time may need to be adjusted due to the application, environment, tool wear, etc. Adjustments are made by turning the adjustment screw, located inside the battery compartment. Turn the screw clockwise to increase weld time and counterclockwise to decrease weld time.

Establishing the correct weld time is a matter of trial and error and should be conducted as follows.

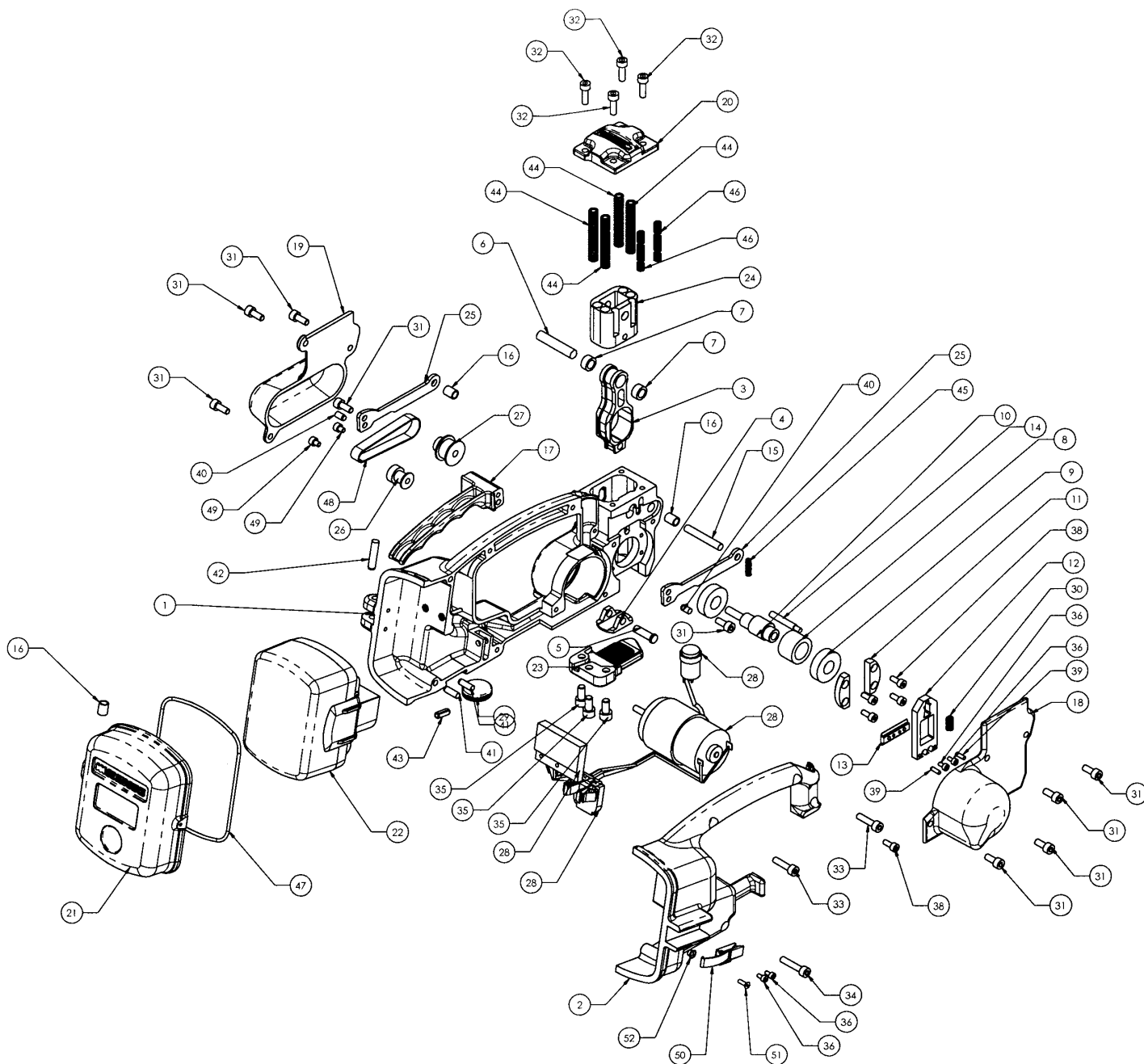
1. Remove the tool battery to access the adjustment screw. Adjust the screw in 1/8 to 1/4 turn increments only.
2. Reinstall the battery, apply a strap and make a weld.
3. Compare the weld made with the illustration shown above. A good weld will displace some material along the outer edges of the joint.
4. If you are unable to produce an acceptable joint or if you have any questions as to whether your tool is producing good weld strength, contact your Signode Sales Representative.



PARTS LIST

<u>KEY</u>	<u>QTY</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	426583	FRAME
2	1	426586	FRAME COVER
3	1	426508	VIBRATOR ARM
4	1	<u>426577</u>	<u>UPPER WELD GRIPPER</u>
5	1	426511	PIVOT PIN
6	1	427074	PISTON PIN
7	2	423997	BEARING INA HK0808
8	1	423994	BEARING INA NK 16/16
9	2	023097	BEARING
10	1	426576	ECCENTRIC SHAFT 0.9 mm
11	2	426901	CUTTER GUIDE
12	1	426512	CUTTER INSERT HOLDER (MACH)
13	1	<u>426581</u>	<u>CUTTER INSERT VTS90</u>
14	1	426884	CUTTER PIN
15	1	427075	HANDLE PIN
16	3	427076	GARLOCK 0610DU BUSHING
17	1	426596	HANDLE
18	1	426588	MOTOR COVER
19	1	426592	BELT COVER
20	1	426590	COVER
21	1	426594	BATTERY COVER
22	1	<u>427087</u>	<u>14.4 V BATTERY CELL</u>
23	1	<u>427079</u>	<u>BASE (16MM)</u>
	1	<u>426906</u>	<u>BASE (19MM)</u>
	1	<u>426907</u>	<u>BASE (25MM)</u>
24	1	426575	PISTON
25	2	426897	LIFT ARM
26	1	426578	GATES PULLEY 16 TEETH
27	1	426579	GATES PULLEY 28 TEETH
28	1	427085	ELECTRICAL ASSEMBLY
	1	427089	PC BOARD
	1	427084	BATTERY CONNECTOR
	1	427077	LIGHTED SWITCH
	1	427078	MABUCHI MOTOR
29	1	427081	WEAR PAD
30	1	423943	SPRING
31	9	423288	M5 X 12 SHCS
32	4	170304	M5 X 16 SHCS
33	2	166063	M5 X 20 SHCS
34	1	010031	M5 X 25 SHCS
35	3	280848	M6 X 12 SHCS
36	4	262456	M3 X 6 SHCS
37	2	280629	M3 X 20 SHCS
38	5	420216	M4 X 10 SHCS
39	2	274451	03 X 10 DOWEL PIN
40	2	181261	05 X 10 DOWEL PIN
41	2	423493	05 X 16 DOWEL PIN
42	1	162404	06 X 28 DOWEL PIN
43	1	425158	05 X 14 ROLL PIN
44	4	427080	LEE SPRING LC-049D-17M
45	1	427082	LEE SPRING LC-020B-8M
46	2	427083	LEE SPRING LC-035C-15M
47	1	427086	O-RING SAE-157
48	1	<u>426580</u>	<u>GATES BELT</u>
49	2	<u>423591</u>	<u>M4 X 5 SHCS</u>
50	1	<u>426665</u>	<u>DRAW LATCH</u>
51	1	~	M3 X 10 SFHCS
52	1	426671	BUTTON KEEPER

- When ordering parts please indicate tool model, part number and description.
- Recommended spare parts are underlined and should be stocked.
- Common hardware parts can be obtained at any local hardware supply.



⚠ WARNING

Inspect all parts daily and replace them if they are worn or broken. Failure to do this can affect a product's operation and could result in serious personal injury.

TROUBLE SHOOTING

The following items are the most common types of tool malfunctions. For symptoms or remedies not shown, contact your Signode service representative for additional information and details. The following tool conditions are shown in this manual:

#1 - A poor weld identified by an incomplete area of weld.

#2 - Incomplete or no weld.

#3 - Strap is over welded.

#4 - The cut-off has become difficult.

#1 CONDITION: A poor weld identified by an incomplete area of weld.	
CAUSE	REMEDY
Welding is achieved by a combination of vibration and downward pressure of the upper gripper. Either a restriction of motion or a reduction of downward pressure will cause a poor weld.	Dismantle and clean the weld mechanism by brushing away the strap residue or washing the entire unit in a solvent. When a solvent is used it is imperative the assembly be blown dry to remove all solvent. Check for dry or worn bearings. Replace or lubricate as required. If the tool has been used extensively, examine the teeth on the upper and lower weld pads for wear. Replace if worn.

#2 CONDITION: Incomplete or no weld.	
CAUSE	REMEDY
1. Improperly set weld time adjustment.	1. Adjust weld time as required per instruction in this manual.
2. Worn teeth on upper or lower weld pads.	2. Replace as required.
3. Low battery voltage.	3. Recharge battery as required.

#3 CONDITION: Strap is over welded.	
CAUSE	REMEDY
Improper weld timing adjustment.	Decrease weld timing as needed.

#4 CONDITION: The cut-off has become difficult.	
CAUSE	REMEDY
1. Strap residue jamming cutter mechanism.	1. Clean parts as required.
2. Cutter blade worn or damaged adjustability.	2. Replace as required.

TOOL MAINTENANCE

GENERAL

1. Clean the teeth on the upper welding gripper and welding base with the special brush provided.
2. Periodically clean the tool with compressed air.
3. Disassemble, clean and lubricate the welding and cutting mechanisms.

CUTTER INSERT SERVICE

The cutter insert of the BTS has two serrated cutting edges. Over time the cutter blade insert may become worn. Use the instructions below to reverse the insert to use the other cutting edge. If the blade has been previously reversed, it should be replaced with a new part. These instructions can also be used for installing a new cutter insert.

1. Remove the battery cell from the tool.

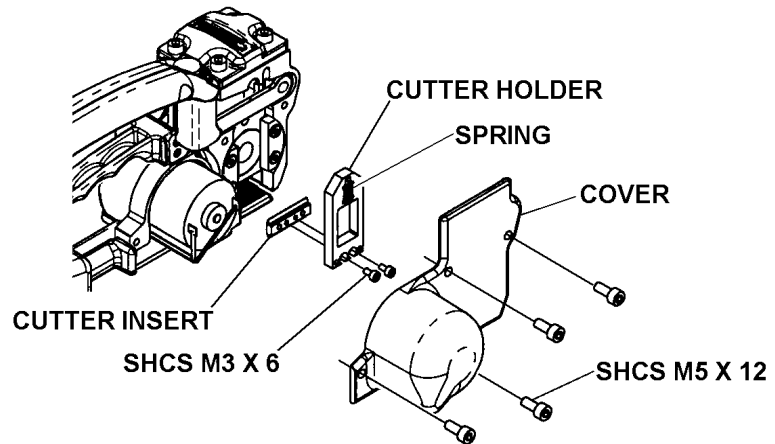
2. Remove the four M5x12 socket head cap screws which secure the front cover to the tool.

3. Remove the cutter holder from the tool. The small compression spring should remain with the cutter holder as it is removed.

4. Remove the two M3x6 socket head cap screws which secure the cutter insert. Rotate the cutter insert 180° and reinstall (or replace if new).

5. Clean any debris from the tool and apply a light coating of grease to the cutter holder.

6. Reinstall the cutter holder into the tool. Continue to reinstall the front cover.





EU Declaration of Conformity

The Supply of Machinery (safety) Regulations
1992 (S.I. 1992/3073)

It is hereby declared that the undermentioned machinery has been designed and constructed to comply with the health and safety requirements defined in EC Directive 89/392/EEC

Machine Supplier: Signode, Division of ITW Ltd.
Queensway, Fforestfach
Swansea SA5 4ED

Machine Description: BTS Series

Machine Type: Electric Combination Hand Strapping tool.

Provisions with which machine complies:

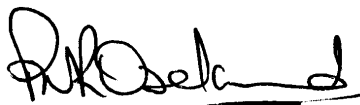
89/392/EEC, 91/368/EEC

Harmonized EuroNorms with which machine complies:

EN 292:1, EN 292:2, EN 294, EN 349

Technical Standards with which machine complies:

NA

Signature:  Date: 12 July 2007

(Peter Oseland)

SIGNODE NEW TOOL WARRANTY

Signode Engineered Products Warrants that a new Signode strapping tool will operate per functional specifications for a period of sixty (60) days after the date of shipment to the owner's place of business. Normal wearing parts, as outlined in the Operation, Parts & Safety manual, are covered by a thirty (30) day warranty unless, in Signode's judgment, these parts have been subjected to abnormal or extreme usage. Signode's sole liability hereunder will be to repair or replace, without charge, F.O.B. Signode's Glenview, Illinois plant, any tool which proves to not operate per functional specifications within the stated period. Signode reserves the right to replace any tool which proves not to operate per functional specifications with a new or like-new tool of the same model if in Signode's judgment such replacement is appropriate. Any new replacement tool provided to an owner will carry a full sixty (60) day warranty. Any warranty repaired tool or like-new replacement tool will carry a warranty for the balance of the time remaining on the initial sixty (60) day warranty. This warranty will be extended to compensate for the time the tool is in Signode's possession for warranty repairs.

This warranty is void as to any tool which has been: (I) subjected to mis-use, misapplication, accident, damage, or repaired with other than genuine Signode replacement parts, (II) improperly maintained, or adjusted, or damaged in transit or handling; (III) used with improperly filtered, unlubricated air or improper strapping material, (IV) in Signode's opinion, altered or repaired in a way that affects or detracts from the performance of the tool.

SIGNODE MAKES NO WARRANTY, EXPRESSED OR IMPLIED, RELATING TO MERCHANTABILITY, FITNESS OR OTHERWISE EXCEPT AS STATED ABOVE AND SIGNODE'S LIABILITY AS ASSUMED ABOVE IS IN LIEU OF ALL OTHERS ARISING OUT OF OR IN CONNECTION WITH THE USE AND PERFORMANCE OF THE TOOL. IT IS EXPRESSLY UNDERSTOOD THAT SIGNODE SHALL IN NO EVENT BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES WHICH MAY ARISE FROM LOSS OF ANTICIPATED PROFITS OR PRODUCTION, SPOILAGE OF MATERIALS, INCREASED COSTS OF OPERATION OR OTHERWISE.

Considerable effort has been made to ensure that this product conforms to our high quality standards. However, should you experience any difficulties, please contact your Sales Representative providing samples and the manufacturing code specified on the tool.

Thank you for your help.

SIGNODE ENGINEERED PRODUCTS
Hand Tool Division
3620 W. Lake Avenue, Glenview, Illinois 60025

PART #	DESCRIPTION	AREA OF USE
LUBRICANTS		
008556	LS-1236 AIR LINE OIL	AIR MOTORS, AIR VALVES
177029	GEAR HOUSING GREASE	CLUTCH DRIVES, INTERNAL GEARS, GEAR SETS
422792	WHITE LUBRIPLATE GR-132 GREASE	PNEUMATIC PARTS, AIR CYLINDERS, AIR VALVES, O-RINGS
422793	BLACK LUBRIPLATE 3000W GREASE	MOVING EXTERNAL PARTS, JAWS, LINKS
425239	RED MOBILITH SHC 007 GREASE	INTERNAL GEARS
432322	EP ACCROLUBE GREASE	HIGH FRICTION CONTACT PARTS
ADHESIVES		
274111	LOCTITE #380 BLACK MAX	PERMANENT, FLAT SURFACE PART CONTACT
422794	LOCTITE #222 PURPLE	LOW STRENGTH, SCREWS 1/4" (6MM) OR SMALLER SIZES
422795	LOCTITE #242 BLUE	MEDIUM STRENGTH, SCREWS 5/16" (8MM) OR LARGER SIZES
422796	LOCTITE #271 RED	HIGH STRENGTH, SEMI-PERMANENT SCREW APPLICATION
422797	LOCTITE #609 GREEN	PERMANENT, CURVED SURFACE PART CONTACT
CLEANING BRUSHES		
023963	SMALL BRUSH	FEEDWHEEL & GRIPPER TEETH
269589	LARGE BRUSH	FEEDWHEEL & GRIPPER TEETH