OPERATION, PARTS AND SAFETY MANUAL

SIGNODE®

SPC-3431

PNEUMATIC COMBINATION STRAPPING 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

⚠ SAFETY INSTRUCTIONS

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.

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.

8. OPERATING SEQUENCE.
Use the correct Signode products for your application. If you need help contact your Signode Representative. Before using this sealless tool, read the Operation and Safety Instructions contained in this manual.

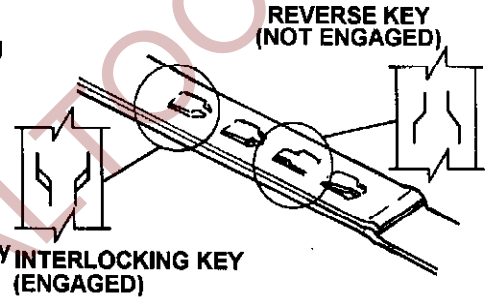
9. JOINT FORMATION
Sealless joints are formed when overlapping straps are punched simultaneously creating interlocking keys. However, the integrity of the joint is obtained when the keys punched in the upper strap move in relation to the keys on the bottom strap, allowing the straps to interlock. The movement necessary to create the interlock comes from the strap tension release where the top strap moves one direction and the bottom strap moves in the other direction. Therefore, never attempt to make a sealless joint without having the straps under tension - the joint may come apart easily.

This tool is a punch type sealer. A properly formed 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 tool's operating instructions are being followed before applying another strap.

B. Ensure that tension has been applied to the straps before the sealer handle is activated. Tension is necessary to ensure that the keys fully interlock.

C. After confirming the above 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.

Always tuck the strap end back into the dispenser when not in use.

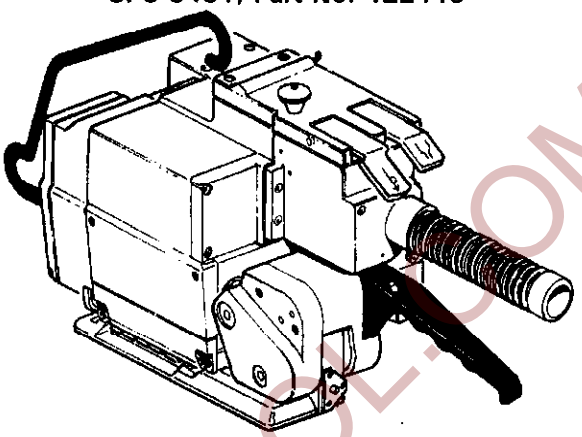
10. CUTTING TENSIONED STRAP
Using claw hammers, crowbars, chisels, axes or similar tools can cause tensioned strap to fly apart with hazardous force. Use only cutters designed for cutting strap. Read the instructions in the cutter's manual for proper procedure in cutting strap. Before using any Signode product read its Operation and Safety Manual.

Safety instructions in Spanish are available from your Signode Sales Representative.

Su vendedor Signode le puede proporcionar los instructivos de seguridad en espanol.

TABLE OF CONTENTS

SPC-3431, Part No. 422446



INTRODUCTION

The SPC is a pneumatically operated hand tool intended for use only with Signode strapping. The tool is easy to load, tension and seal.

Once the strap has been placed around the package, the operator puts both layers of strap into the tool, lowers the feed wheel, removes any strap slack and tensions the strap. The keyed sealless joint is then created and the strap is cut free of the supply.

This manual provides the information necessary for the operation of the SPC hand tool and lists all of the parts in the event maintenance is needed. Therefore, it is valuable and should be saved.

Extra care should be taken in performing maintenance on the SPC since fasteners and other small components used on this tool are a combination of SAE and metric sizes.

⚠WARNING

This tool was designed and tested using Signode strap. Using non-Signode strap may adversely affect the tool's tensioning capability and the strength of the joint

The SPC tools can be purchased with one or more of the following tool options (See page 33 of this manual):

Carrying Handle, Part No.306357
Balance Arm BA-21A, Part No. 005630
Balance Arm Adapter, Part No. 306478
Tool Balancer, Part No. 005603

SPECIFICATIONS

Operating air pressure: 80-90 PSI (5.5-6.2 BARS)

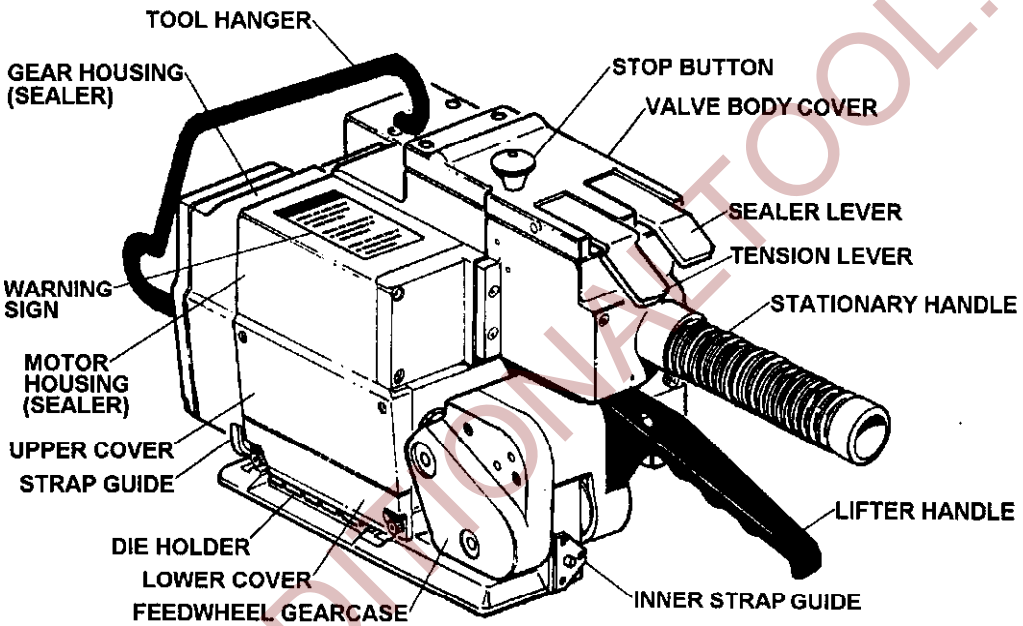
Physical Dimensions (w/o hanger): 14 1/4" L x 6 1/4" W x 8 1/4" H (362mm x 159mm x 210mm)

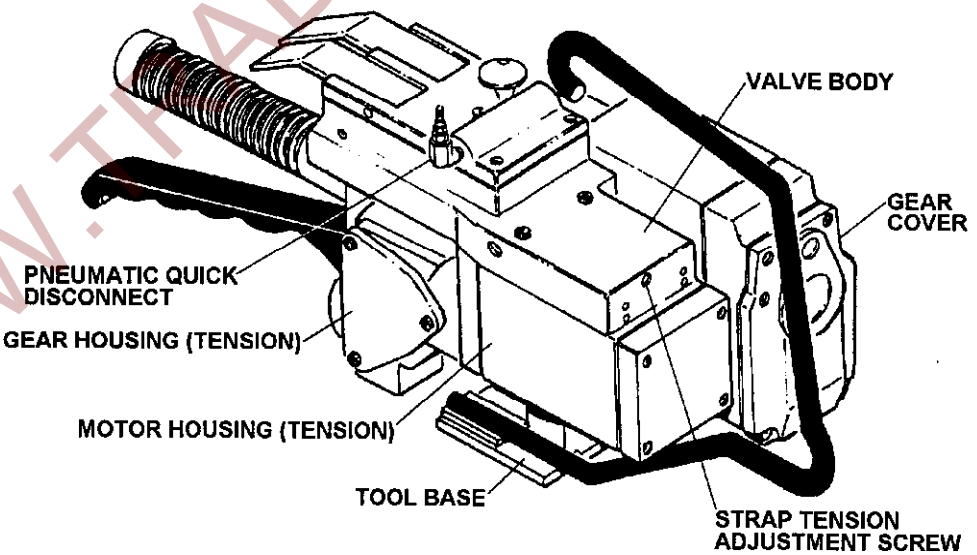
Weight: 25 pounds (111N) w/ tool hanger.

SPECIFICATIONS, Continued

MODEL	STRAP			STRAP TENSION @ 90 PSI
	TYPE	WIDTH	THICKNESS	
SPC 3431	MAGNUS	3/4" (19mm)	.025 to .031" (0.64 - 0.78mm)	1600LBS (7104N)

MAJOR COMPONENTS





PNEUMATIC INFORMATION

AIR LINE PIPING INSTALLATION

If compressor has a good dryer unit, use black pickled pipe. When a dryer unit is not installed, use galvanized or copper pipe.

To perform reliably, a pneumatic tool requires a continuous source of clean, water-free air at adequate pressure.

⚠WARNING

Never operate this tool using a bottled air or gas source.

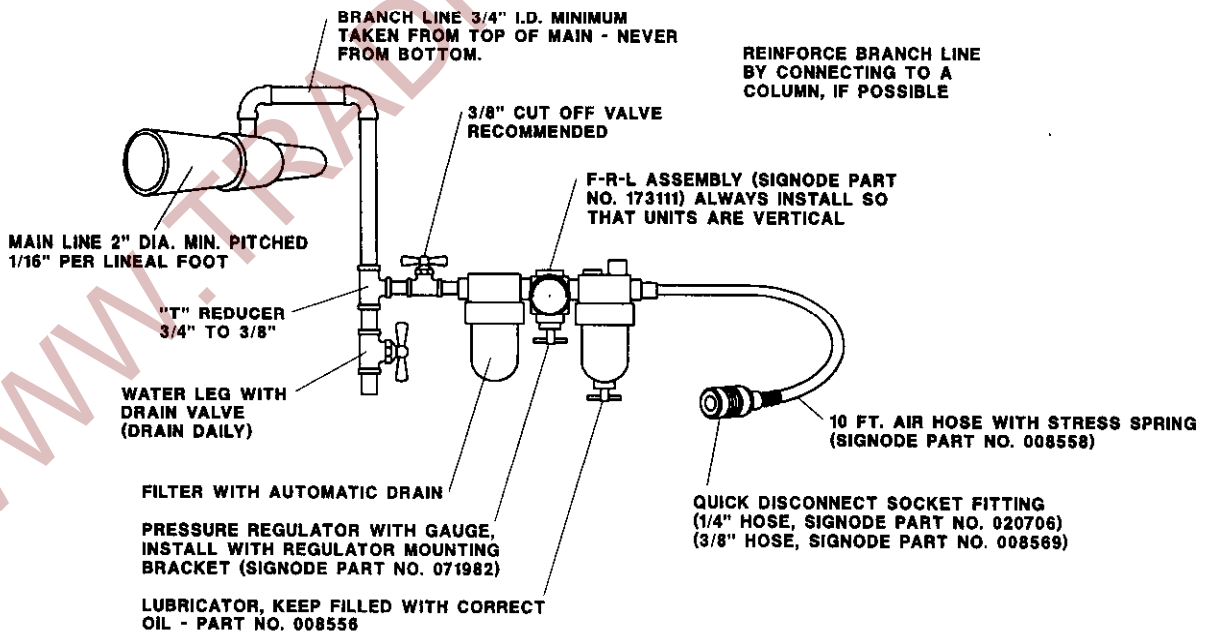
A filter-regulator-lubricator unit (Signode Part No. 173111) must be installed as close to the air tool as possible, preferably within 10 feet. It should be placed in a convenient location where it can easily be drained, adjusted, and filled with oil. The air hose must have at least a 3/8" I.D. A quick-connect press-on socket is installed on the stress spring end of the hose for convenient hookup to the air tool.

Filter and lubricator bowls are made of polycarbonate material. Do not install where bowls may be exposed to materials incompatible with polycarbonate. Certain oils, solvents, and chemicals or their fumes can weaken these bowls and possibly cause them to burst. Clean only with warm water.

A cut-off valve placed ahead of the filter will be useful when cleaning the filter or replenishing the lubricator.

MOISTURE

Moisture is always present in air lines due to condensation within the lines as the air cools. Steps must be taken to remove this moisture and to keep it from the air tool. This is because water tends to wash away lubricants and cause corrosion, sticking and failure of internal parts.



The main line should be pitched so the far end terminates in a water leg. Branch lines are taken from the top of the main, never off the bottom. Every branch should have a water leg at its lowest point, with a drain cock which is drained daily.

If these precautions are taken and water is still present, an after cooler and a moisture separator are required between the compressor and the air receiver tank. A large air line separator can be installed in the air tool line, but precautions must be taken to insure that it will be drained daily, before the air tool is operated.

Water in air lines is a constant threat to the proper operation of air tools. Even near freezing operating conditions, a good refrigerant type dryer is essential. A good dryer will remove 95% or more of water right at the compressor. The remaining moisture is removed at the water leg in the piping system or in the filter, Signode Part No. 173111. Additional information is available in the Signode publication, "Air Supply Manual" Signode Part No. 186038. If you have any questions, contact your local Signode Representative.

LUBRICATION

The air motor must be properly lubricated. This is achieved by keeping the air line lubricator filled with oil and correctly adjusted. Without proper lubrication, the motor will become sticky and the tool will give low and erratic tension and be difficult to release from the strap.

Install the lubricator as close to the air tool as possible. The arrow on the lubricator's top surface must point in the direction of air flow.

For proper operation, oil must drop through the lubricator sight glass at a rate of 4 to 10 drops per minute. This rate is to be checked while the air tool is running free. Only 20% of this oil is actually delivered to the tool. The remaining oil drops back into the oil reservoir. The unit is factory set and should require no adjustment. If an adjustment is required, the adjusting screw on top of the lubricator may be turned as marked to reduce or increase the flow of oil.

The correct grade of oil must be used in the lubricator; too heavy an oil will not provide sufficient lubrication and will cause sticking and sluggish operation of the air tool.

Recommended oils are any good grade of rust and oxidation inhibiting oil with a viscosity of 80-120 S.U.S. at 100 degrees Fahrenheit. (0.15 to 0.25 cm^2 /sec. at 38 degrees Celsius), such as:

Non Fluid Oil Co., grade #LS-1236
Signode oil - Part No. 008556

If necessary, use SAE #5 or SAE #10, non-detergent, cut 1:1 with kerosene. Some oils contain anti-wear additives which may disable the air motor. Be certain to use recommended oil.

Several drops of lubricator oil added to the inlet of the air motor or into the air line each day will help insure good operation. A noticeable reduction of air motor performance can usually be corrected by squirting a few drops of oil into the air line.

COLD WEATHER OPERATION

If a tool does not operate satisfactorily in freezing temperatures, certain steps can correct the problem. The following steps can be taken to improve cold weather operation of the tool:

a. An air line dryer adjacent to the compressor.

b. Use lubricant recommended by Signode. Signode has tested the use of anti-freezes, none work well in air tools; the tool will gum up when anti-freezes are introduced and will not function properly. The best lubricant for freezing weather is the 1 to 1 oil and kerosene combination.

c. If possible, run the air supply line to a indoor located Filter-Regulator-Lubricator or relocate the F-L-R to a warmer operating area.

AIR CONSUMPTION

Air consumption in cubic feet per minute (cfm) for the SPC can be calculated as follows:

$$cfm = (a)x(b)x(0.37)$$

a = Number of straps applied per minute.
b = Number of seconds air motor is on per strap during tensioning, from start to finish sealing.
0.37 = SPC efficiency ratio.

Example calculation:
Peak strapping load is 4 straps/minute, so a = 4. Air motor is on 5 seconds/strap, so b = 5. SPC efficiency ratio is 0.30.

(a)x(b)x(0.37) = 4x5x0.37 = 7.4 cubic ft/min.

Air pressure is assumed to be 90 psig with the recommended size and length of air hose. Volume of air at room temperature and sea level pressure, or so-called `free air' conditions. For more detailed information about air supply systems, refer to Signode manual Part No. 186038.

AIR LINE PRECAUTIONS

Too much air pressure can cause internal tool damage. The maximum operating air pressure for this tool is 90 psig.

⚠WARNING

Strap breakage hazard. Strap breakage can result in severe personal injury. Strap can break during tensioning if inlet air pressure to tool exceeds 90 psig. Maximum operating air pressure is 90 psig.

OPERATING INSTRUCTIONS

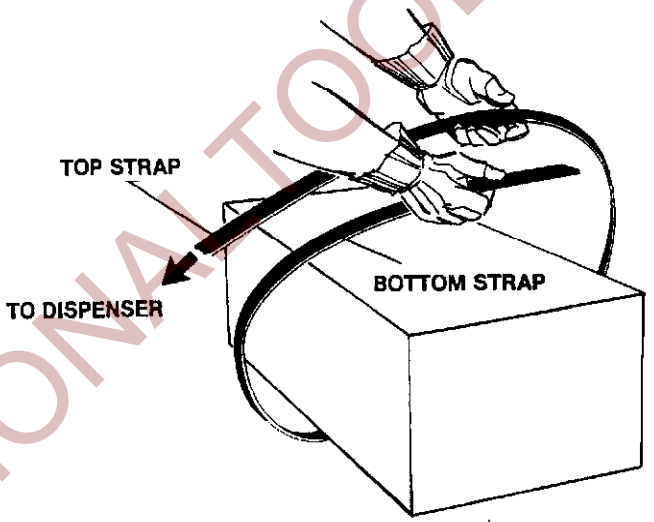
⚠WARNING

Wear safety glasses. Always position yourself to one side of the strap. Make sure all bystanders are clear before proceeding.

1. STRAP LOADING

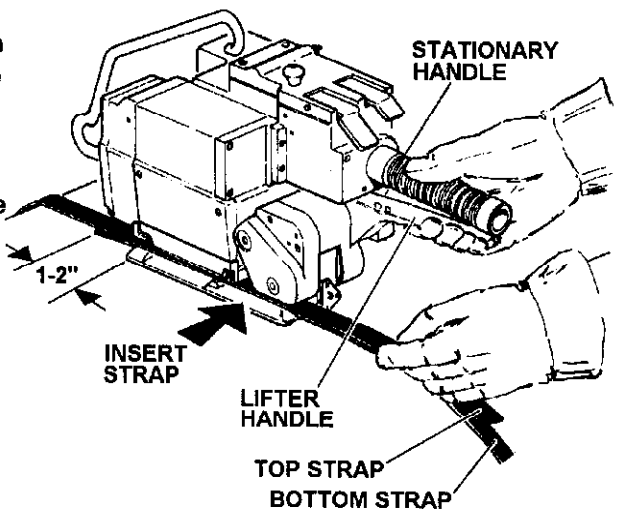
Make sure the strap being used is the proper size for the tool model being used. Refer to the Specifications section on page 5 of this manual.

Pass the strap over the top of the package then bring the lead end around and up. This will result in creating a TOP STRAP and a BOTTOM STRAP. They will be referred to later in these instructions.



2. POSITIONING THE TOOL

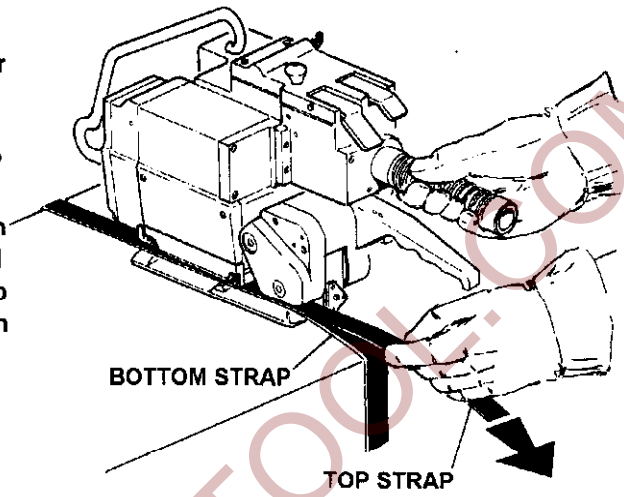
Squeeze the lifter handle and the stationary handle together to create an opening between the feedwheel and the gripper plug. Grasp the TOP STRAP and BOTTOM STRAP together and insert both straps sideways into the tool between the feedwheel and the gripper plug. Allow for the lead end of the strap to protrude 1" to 2" beyond the tool base. When the straps are properly loaded, the sealing mechanism will be in line with the strap. Release the lifter handle.



3. REMOVING THE STRAP SLACK

Pull back on the TOP STRAP to eliminate additional slack strap around the package. NOTE: Do not push down on the lift handle or slack pull-out may become difficult.

Before continuing, make sure the TOP STRAP is still in position, as described earlier. Note that the BOTTOM STRAP will be positioned in the channel on the bottom surface of the tool base. This too, is necessary to maintain strap alignment during tension. Make sure that both straps are also correctly aligned with each other in the tool.

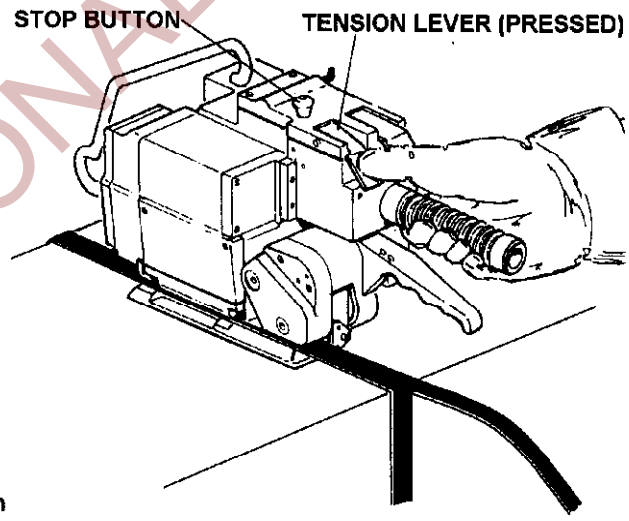


4. TENSIONING THE STRAP

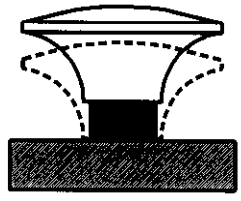
While standing to one side of the strap, press tension lever all the way down until it latches into place.

The tool will tension the strap around the package until the air motor stalls at the adjusted tension setting. Refer to Strap Tension for information on adjusting the strap tension.

NOTE: If strap alignment on the package is unsatisfactory and it becomes necessary to shut off the tool during the tensioning portion of the cycle press down the stop button. Squeeze the lifter handle or cut the strap from the package to remove the strap from the tool. Reload and realign the strap.

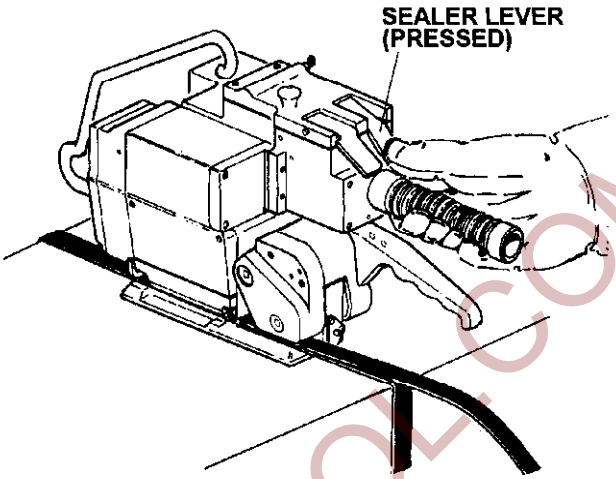


Pull the stop button to the full up position and repeat step 4. NOTE: If the stop button is not in the fully upwards position the tool will not perform properly.



5. FORMING THE STRAP JOINT

Press down on the sealer lever. Air will be then routed to the second air motor enabling the sealer mechanism to punch the strap and cut-off the TOP STRAP. The sealer mechanism will disengage from the strap leaving the cut off end of the strap clamped under the feedwheel.

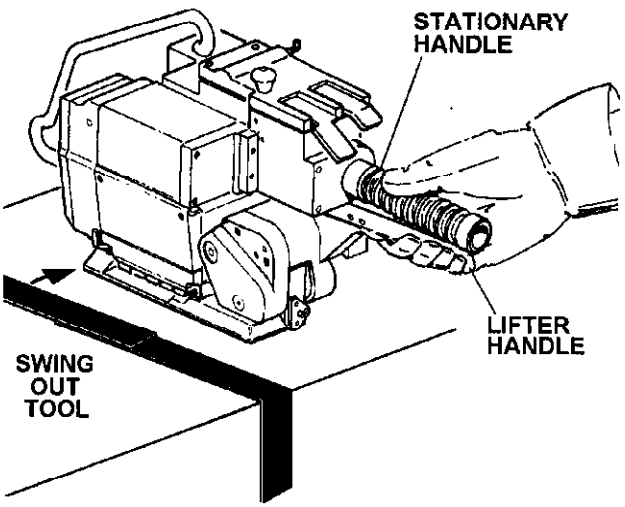


NOTES:

- If the tool does not fully cycle in making the strap joint, it cannot be removed from the strap.
- If the tool does not complete the strap cycle, check for proper operating pressure of 80-90 psi. (5.5-6.2 Bar).
- If the tool stalls using proper air pressure, disconnect air supply and cut strap off of package. Remove the side covers and inspect the tool for broken parts.

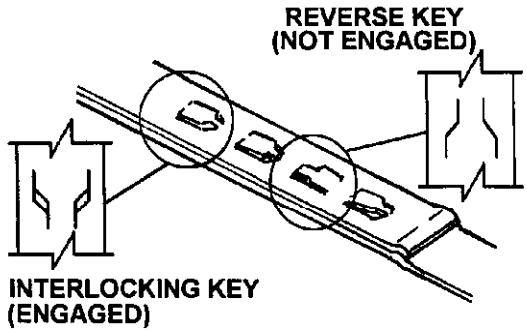
6. TOOL REMOVAL & JOINT INSPECTION

Squeeze the lifter handle and the stationary handle together to release the cut off strap end. Swing out the front of the tool to remove the tool from the strap. To make sure the tool has properly formed a joint, closely inspect the strap. Refer to Sealing Operation on the following page for details regarding an acceptably formed joint.



STRAP JOINT APPEARANCE & FORMATION

A properly formed joint will appear as shown in the following illustration.



⚠DANGER

If the joint does not appear as shown, then the operator must proceed as follows:

- Make sure that the tool's operating instructions are being followed before applying another strap.
- Make sure that tension has been applied to the straps before the sealer handle has been actuated. Tension is necessary to ensure that the keys fully interlock.

After confirming the above, cut off the strap 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.

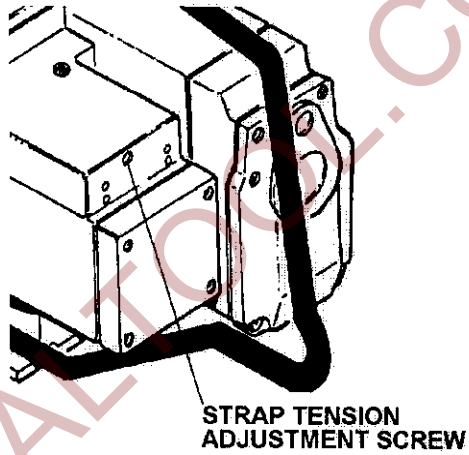
NEVER HANDLE OR SHIP ANY LOAD WITH IMPROPERLY FORMED JOINTS.

Misformed joints may not secure the load and could cause serious injury.

PART REPLACEMENT & ADJUSTMENTS

STRAP TENSION

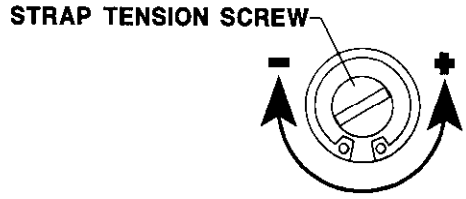
Strap tension is controlled by setting of the adjusting screw. Use proper air line piping and lubricant as specified in this manual.



A minimum of 80 psig (5.5 bar) is required to ensure that the tools will operate properly.

Adjust strap tension as follows:

1. Make sure the air pressure is set between 80 and 90 psig (5.5 - 6.2 BAR).
2. Turn the adjusting screw in 1/4 turn increments clockwise to decrease tension and counterclockwise to increase tension.



NOTE: Strap tension levels vary based on the gearing in the tool. Each strap size has multiple gearing options. Refer to page 5 for information on each tension range.

3. Run a test cycle to check the new adjustment. Continue to adjust strap tension if necessary.

⚠WARNING

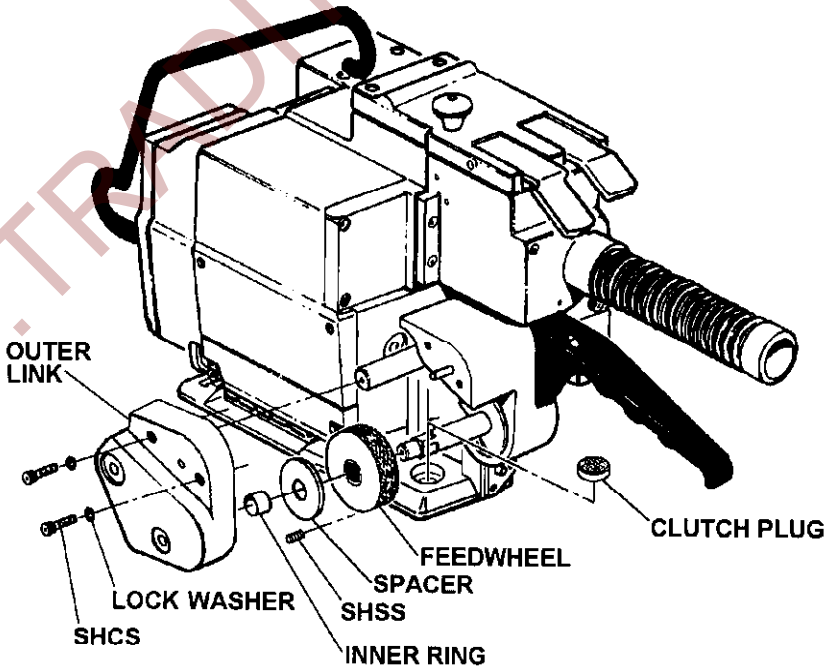
Strap breakage hazard. Increasing the tension can result in strap breakage and could cause personal injury.

Never remove the adjusting screw from the tool with the air connected. The screw could become a flying projectile.

FEEDWHEEL & CLUTCH PLUG REPLACEMENT

To replace a worn or damaged feed wheel and clutch plug:

1. Remove the two socket head cap screws (SHCS) that hold the outer link to the tensioner assembly. This will allow the outer link to be removed from the upper pivot pin and the feedwheel shaft.
2. Lay the tool down on its back. Slide off the old feed wheel and outer spacer.
3. Inspect the feedwheel. Clean or replace as required. Re-install the feedwheel and replace the outer spacer.
4. Remove the clutch plug by first removing the small socket head set screw (SHSS) which secures the clutch plug in place.
5. Remove the clutch plug from the base by pressing through the underside of the tool. Clean out the clutch plug's pocket in the base if necessary.
6. Inspect the clutch plug. Clean or replace as required.
7. Install the clutch plug into the base. Make sure the plug is properly seated.
8. Install the set screw into the base to secure the gripper plug.



PART REPLACEMENT & ADJUSTMENTS, Continued

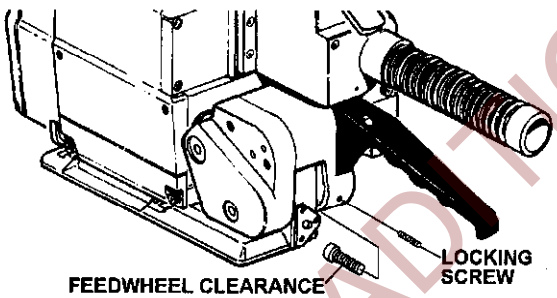
9. Lightly grease the feedwheel shaft, feedwheel bearing and tensioner link bearing with Lubriplate #107 or 3000W during the reassembly.

10. Re-install the outer link and replace the two socket head cap screws. Once the outer link has been installed proceed to check the feedwheel clearance.

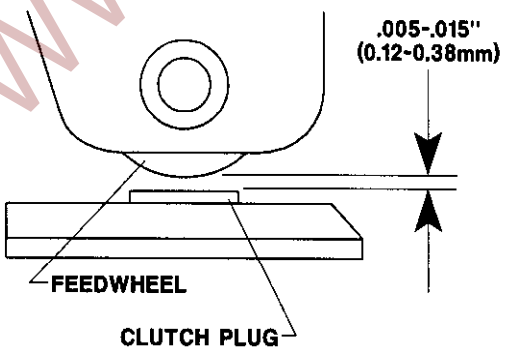
FEEDWHEEL CLEARANCE

The clutch plug holds the lower strap in the tool as the strap is tensioned around the package.

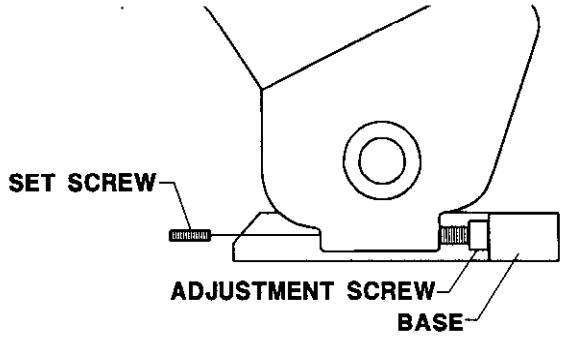
1. The position of the gripper plug is held in place by use of a small set screw which approaches the clutch plug at a right angle.



2. Measure the clearance between the teeth of the clutch plug and the feed wheel. This clearance should fall between .005-.015" (0.12-.038mm). If the clearance is beyond this range the clearance must be reset.



3. Back off the set screw which locks the adjustment screw in place.



4. Turn the adjustment screw inward into the gear housing to decrease the clearance and outward to increase the clearance.

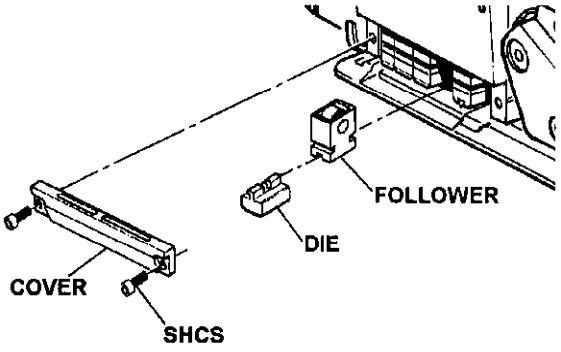
5. Once the clearance has been set, tighten the locking set screw to hold the adjustment.

STRAP DIES

The individual cutter dies can be replaced without removing the sealer assembly from the tool.

1. Remove the two socket head cap screws (SHCS) that secure the lower cover. Remove the cover to expose the four die holder assemblies and the one cutter holder assembly. Remove the appropriate assembly by sliding it straight out of the sealer assembly.

2. Remove the cutter insert from the follower by sliding it straight out of the follower.



3. Replace cutter dies as necessary. Note that the inserts cannot be improperly inserted into the follower because of the unique design of the top mating key.

4. Reinstall the lower cover to the sealer assembly and securely tighten the mounting screws.

STRAP CUTTER

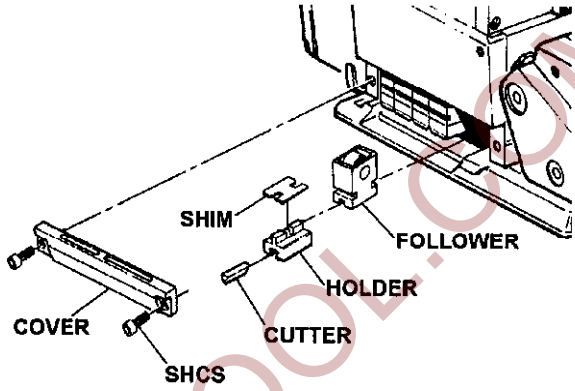
The cutter may have to be adjusted if the tool has been altered to accept a different width or thickness of strap or an adjustment may be needed if the cutter has been replaced due to wear or damage.

Run a complete strapping cycle with strap of the size to be used. A properly adjusted cutter will sever the top strap completely but the lower strap will have a minimal impression, at the most. Excessive scoring of the lower strap is an indication of over cutting and this is not acceptable. A reducing adjustment must be made. If the cutter doesn't cut the top strap, an increasing adjustment must be made.

1. Remove the two socket head cap screws (SHCS) that secure the lower cover to the sealer mechanism. Remove the cover to expose the four individual die assemblies and the cutter assembly.

2. Remove the cutter assembly by sliding it straight out of the sealer assembly.

Continue to remove the cutter blade from the holder and any installed shims from the holder.



3. Closely inspect the cutting surface. If it's acceptable, reinstall the cutter assembly and replace the cover. Otherwise if necessary, rotate the blade to one of the unused cutter surfaces. If the cutter is not worn or damaged, continue by making necessary cutter blade adjustments.

4. Add an additional shim over the cutter blade and reinstall the cutter holder and lower cover.

5. Run a complete strapping cycle and closely inspect the bottom strap. If the top strap has been properly cut-off and there is no impression on the bottom strap, all is as it should be. However, if the top strap is not being cut-off, return back to step 4.

6. When strap cut-off appears to be functioning properly, make sure the lower cover has been securely fastened to the tool.

STRAP PUNCH

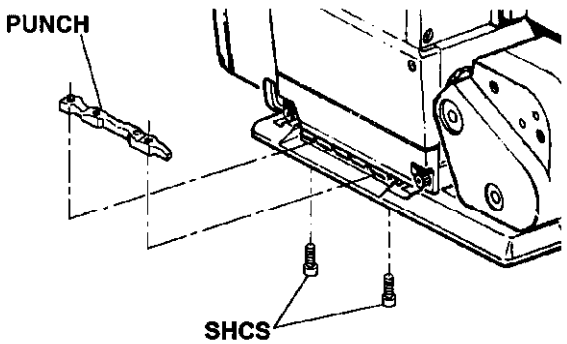
1. Remove from the bottom of the tool the two socket head cap screws (SHCS) which secures the punch.

2. Lift the punch out from the tool and inspect the cutting edges for either wear or chipping.

PART REPLACEMENT & ADJUSTMENTS, Continued

3. Using a sharp tool, clean the holes and counterbores in the base and the screws of Loctite residue.

4. Clean the top surface of the base with a rag and blow out any debris. The base surface must be absolutely clean.



5. Install a new punch. Replace the mounting screws using Loctite #242 sealant.

   NOTE: If the punch is oriented incorrectly the mounting holes in the punch will not line up with the holes in the tool base.

SEALER ASSEMBLY

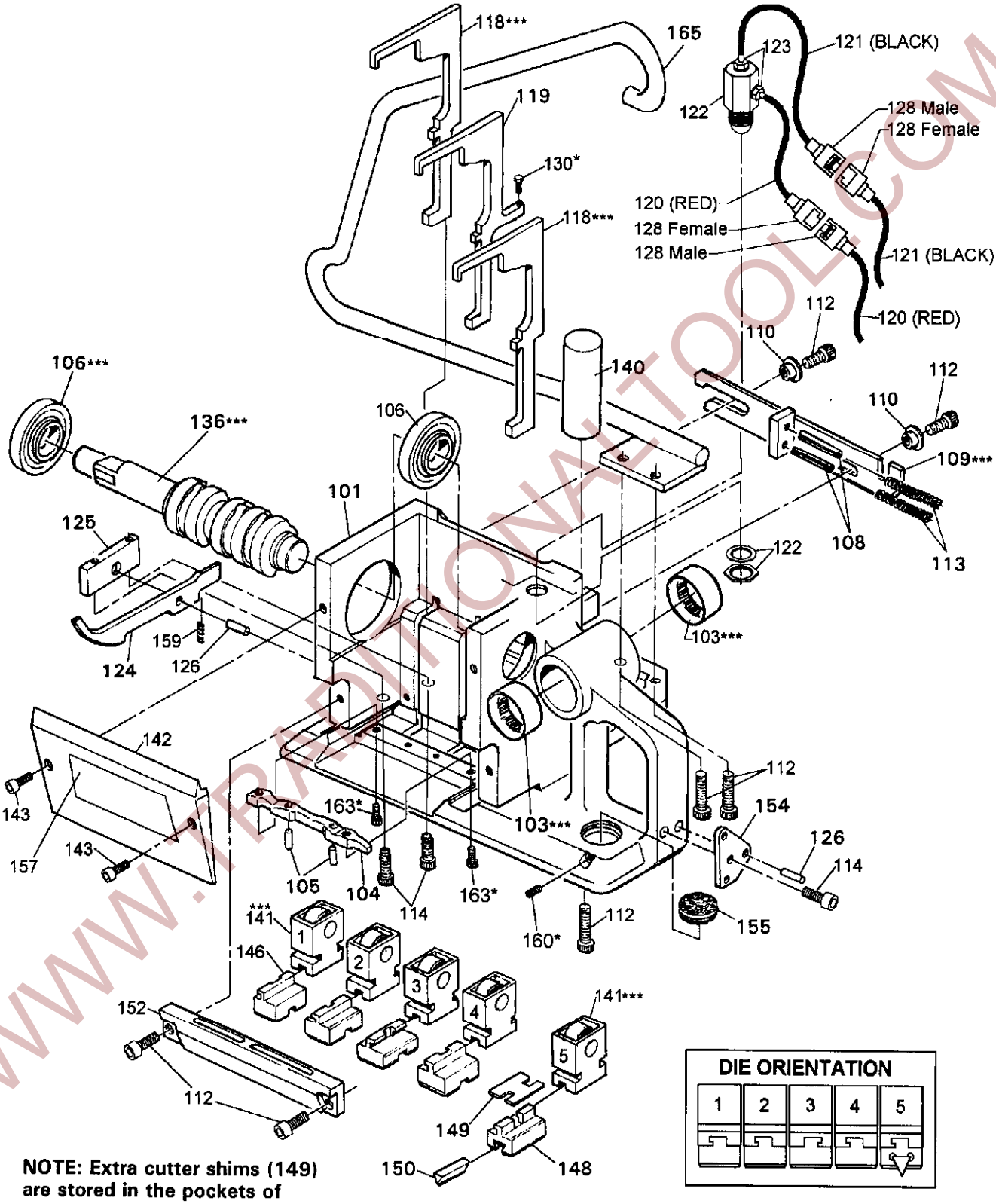
KEY	QTY	PART NO.	DESCRIPTION
101	1	306471	Tension/Sealer frame
103	2	269485	Bearing, HK #1516
104	1	422445	Punch (34,031)
105	2	274451	Dowel pin, 3 x 10mm
106	2	024038	Bearing, Fafnir KP-10A
108	2	306496	Roll pin, 5 x 30mm
109	1	274203	Slider link
110	2	274204	Spacer, slider link
112	7	010037	SHCS, M6 x 20
113	2	306495	Spring, Lee #LHL-375A-4
114	3	165438	SHCS, M6 x 16
118	2	306347	Lifter-2
119	1	306346	Lifter-1
120	2	306336	Tubing, Red, 6" length
121	2	306337	Tubing, Black, 6" length
122	1	306352	Air valve switch
123	2	273822	Compression fitting
124	1	306461	Strap guide
125	1	306462	Fixed strap guide
126	2	256791	Dowel pin, 5 x 14mm
128	2	306483	In-line coupling
130	1	306350	HHCS, M3 x 12
136	1	306343	Camshaft
140	1	274224	Motor support
141	5	306358	Die holder assembly
142	1	306468	Upper cover
143	2	162383	SHCS, M4 x 8
146	4	306366	Die
148	1	306484	Cutter support
149	A/R	274380	Cutter shim
150	1	306867	Cutter
152	1	306473	Lower side cover
154	1	306472	Inner guide
155	1	306349	Clutch plug
157	1	280599	Nameplate
159	1	023353	Spring
160	1	306351	Cone point set screw, M5 x 8
163	2	262551	SHCS, M3 x 8
165	1	274210	Hanger

- When ordering parts, please show tool model, part number and description.
- Wearing parts are usually limited to those underlined and should be stocked.
- Standard hardware may be obtained at any local hardware supply.

⚠WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

* Secure with Loctite #242.
*** Lubricate with Molith No.2 or Lubriplate 3000W.



NOTE: Extra cutter shims (149) are stored in the pockets of the lower side cover (152).

DIE ORIENTATION

1	2	3	4	5

NOTE: Die & holder number 3 installs reversed, see above illustration.

SEALER AIR MOTOR & GEAR HOUSING ASSEMBLY

KEY	QTY	PART NO.	DESCRIPTION
201	1	306420	Rotor
202	1	306431	Pinion gear, 7T
206	1	306422	Backing plate
207	1	031996	Bearing, Fafnir #200-PP
208	11	010037	SHCS, M6 x 20
209	1	306423	Front plate
210	1	256717	Bearing, Fafnir #9101-PP
211	1	306455	Air motor cylinder
212	1	160322	Roll pin, 3 x 24mm
213	1	162489	Roll pin, 3 x 12mm
215	1	306334	O-Ring, #33
216	2	091208	O-Ring, #32
217	1	306456	Motor housing
218	7	306427	Vane
219	2	306425	Bevel washer
220	1	306428	End plate
221	4	306486	SHCS, M6 x 90
222	1	092772	O-Ring, #14
225	1	422441	Sealer idler sub
226	3	253596	Dowel pin, 6 x 14mm
228	1	306457	Bearing, Fafnir #9301-K
229	1	008407	Ring gear
231	3	306436	Gear, 17T
235	1	306469	Thrust washer
236	1	274227	Gearcase
237	1	306497	Dowel pin, 3 x 12mm
238	1	274228	Sealer gearcase cover
241	1	422444	Gear, 39T
242	1	306429	Dowel pin, 3 x 22mm
243	1	422443	Pinion, 9T
244	1	306442	Gear, 35T
245	1	306329	Bearing, INA #BK1512
246	1	306330	Bearing, INA #BK1516
247	2	306328	Bearing, INA #BK810
248	1	306332	Inner ring, INA #IR12X15X12
249	1	286228	Warning label
250	1	286373	Safety sign, 3 symbol

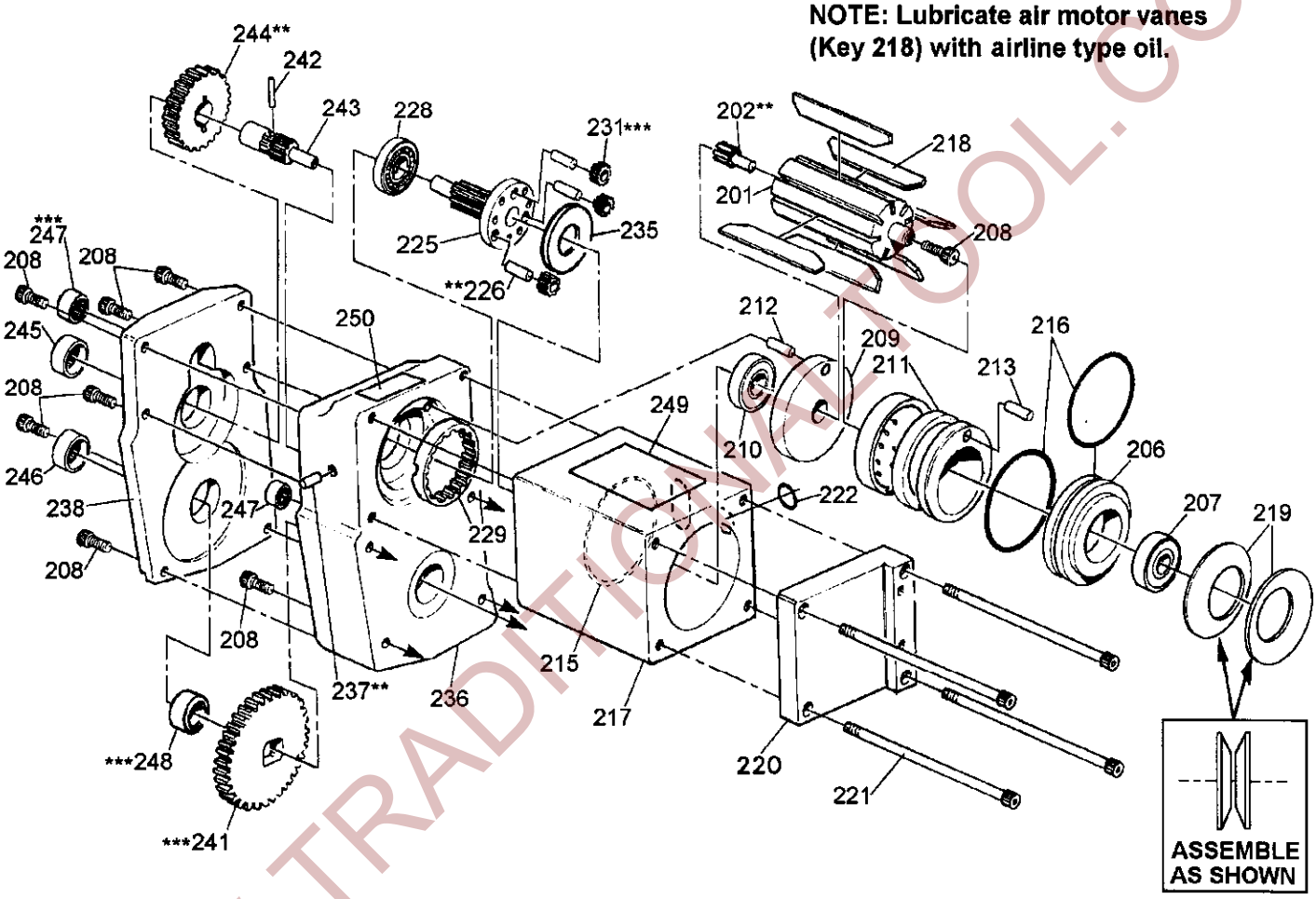
- When ordering parts, please show tool model, part number and description.
- Wearing parts are usually limited to those underlined and should be stocked.
- Standard hardware may be obtained at any local hardware supply.

⚠WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

****Secure with Loctite #609.**

NOTE: Lubricate air motor vanes (Key 218) with airline type oil.

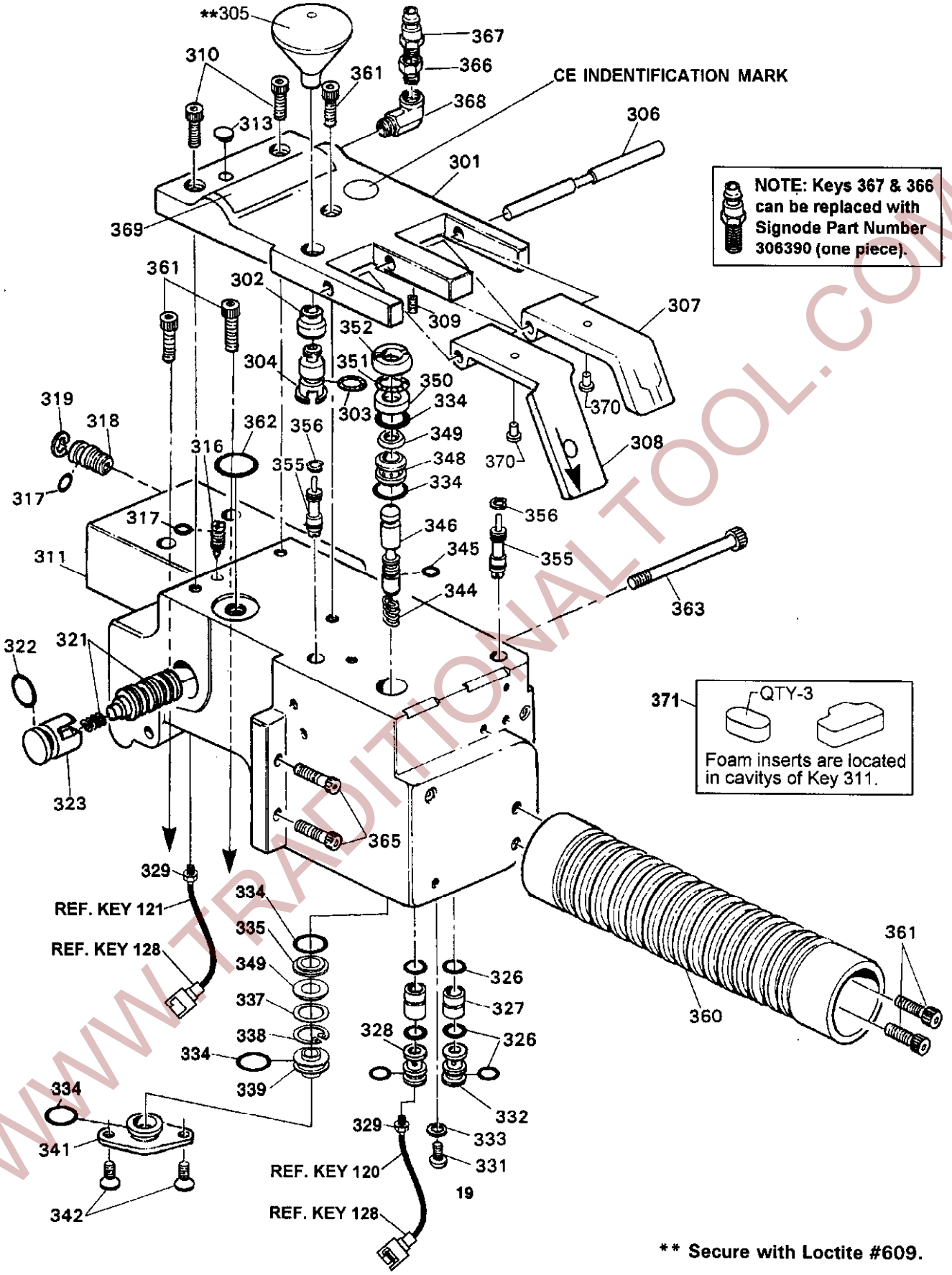


**** Secure with Loctite #609.**
***** Lubricate with Molith No.2 or Lubriplate 3000W.**

VALVE BODY ASSEMBLY

KEY	QTY	PART NO.	DESCRIPTION
301	1	306302	Cover
302	1	306313	Sleeve, detent
303	1	306320	Spring
304	1	306314	Shaft, detent
305	1	306312	Stop button
306	1	306309	Pivot pin
307	1	306474	Lever, sealer
308	1	306311	Lever, tensioner
309	1	306367	Set screw, M4 x 4
310	2	010037	SHCS, M6 x 20
311	1	306489	Valve manifold assembly
313	1	306353	Hole plug
316	1	306307	Seal adjustment screw
317	2	004164	O-Ring, #11
318	1	274214	Adjustment screw, tension
319	1	306338	E-Ring, N-5000-43C
321	1	273818	3-Way cartridge
322	1	022789	O-Ring, #16
323	1	306306	Valve plug
326	6	091624	O-Ring, #10
327	2	306323	Shuttle valve
328	1	306303	Shuttle plug
329	2	273822	Fitting
331	1	306494	BHCS, M4 x 8
332	1	306317	Shuttle plug
333	1	171570	Flat washer, 4mm
334	5	002678	O-Ring, #17
335	1	306318	Seal retainer
337	1	306316	Large seal retainer
338	1	306339	E-Ring, N-5000-77
339	1	306315	Piston
341	1	306308	Valve cap
342	2	306493	FHCS, M6 x 12
344	1	306322	Spring
345	1	012845	O-Ring, #109
346	1	306310	Spool
348	1	306319	Valve sleeve
349	2	306325	U-Seal
350	1	306304	Spacer
351	1	306321	Spring
352	1	306305	Plug
355	2	306324	3-Way cartridge
356	2	306335	E-ring, Truarc #N5000-37
360	1	274265	Handle
361	5	174149	SHCS, M6 x 25
362	1	092772	O-Ring, #14
363	1	306486	SHCS, M6 x 90
365	2	165438	SHCS, M6 x 16
366	1	008478	Reducer
367	1	020704	Quick disconnect plug
368	1	004190	Elbow, 90°
369	1	280523	Information sign
370	2	306359	Wear plug
371	1	306360	Foam insert set (4 pieces)

- When ordering parts, please show tool model, part number and description.
- Wearing parts are usually limited to those underlined and should be stocked.
- Standard hardware may be obtained at any local hardware supply.



NOTE: • Never connect air to valve manifold when it has been disassembled from the the tool.
• Lubricate all O-rings and valve parts with White (Lubriplate) grease.

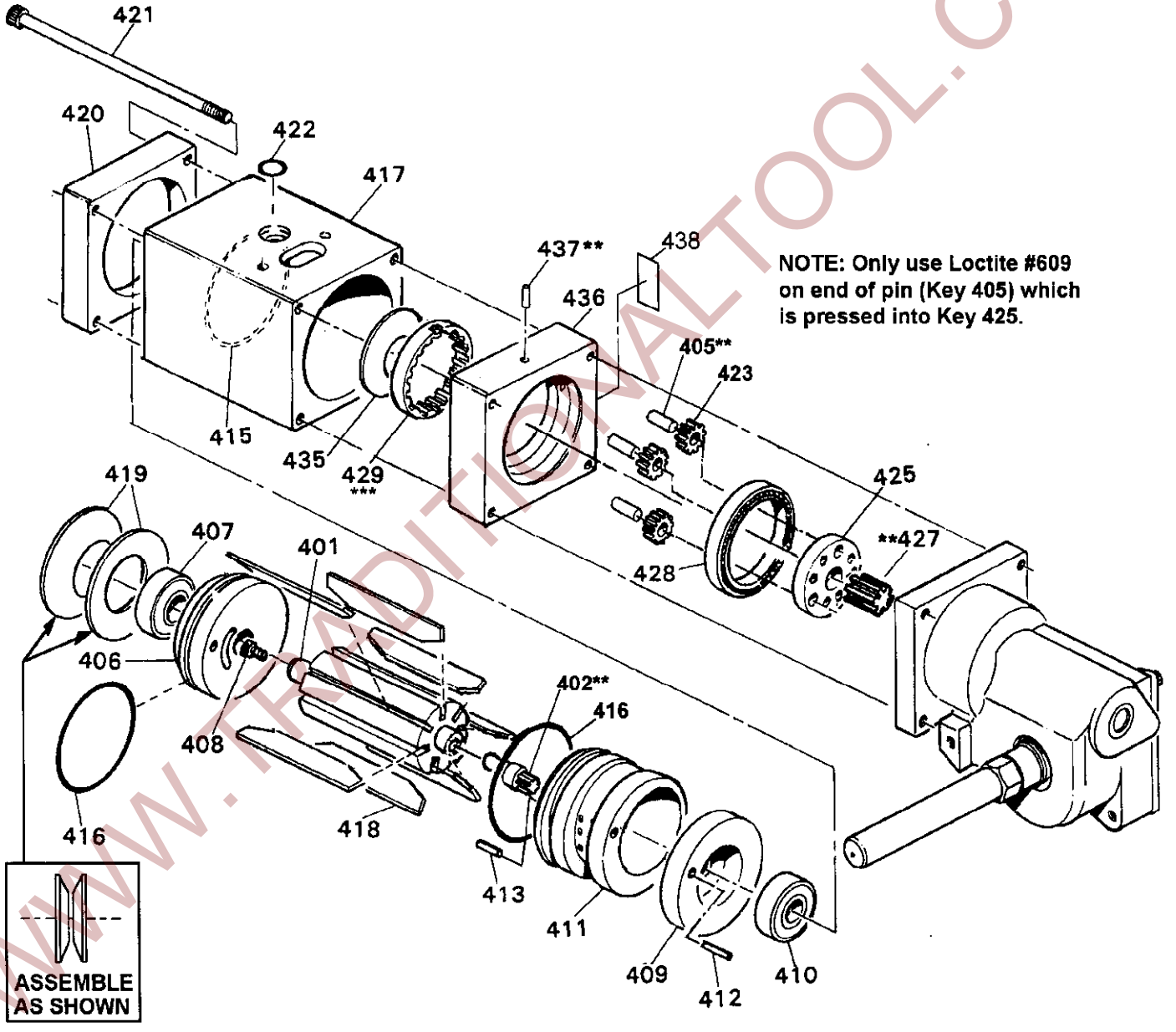
TENSIONER AIR MOTOR ASSEMBLY

KEY	QTY	PART NO.	DESCRIPTION
401	1	306420	Rotor
402	1	306431	Pinion, 7T
405	3	253596	Dowel pin, 6 x 14mm
406	2	306422	Backing plate
407	1	031996	Bearing, Fafnir #200-PP
408	1	010037	SHCS, M6 x 20
409	1	306423	Front plate
410	1	256717	Bearing, Fafnir #9101-PP
411	1	306455	Air motor cylinder
412	1	160322	Roll pin, 3 x 24mm
413	1	282489	Roll pin, 3 x 12mm
415	1	306334	O-Ring, #33
416	2	091208	O-Ring, #32
417	1	306456	Motor housing
418	7	306427	Vane
419	2	306425	Bevel washer
420	1	306424	End cap
421	4	306452	SHCS, M6 x 110
422	1	092772	O-Ring, #14
423	3	306436	Idler, 17T
425	1	306435	First idler carrier
427	1	306438	Pinion, 9T
428	1	306448	Bearing, NTN #6906
429	1	008407	Ring gear
435	1	306469	Thrust washer
436	1	306430	Middle Housing
437	1	306497	Dowel pin, 3 x 12mm
438	1	280553	Information sign

- When ordering parts, please show tool model, part number and description.
- Wearing parts are usually limited to those underlined and should be stocked.
- Standard hardware may be obtained at any local hardware supply.

⚠WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



NOTE: Only use Loctite #609 on end of pin (Key 405) which is pressed into Key 425.

** Secure with Loctite #609.
*** Lubricate with Molith No.2 or Lubriplate 3000W.

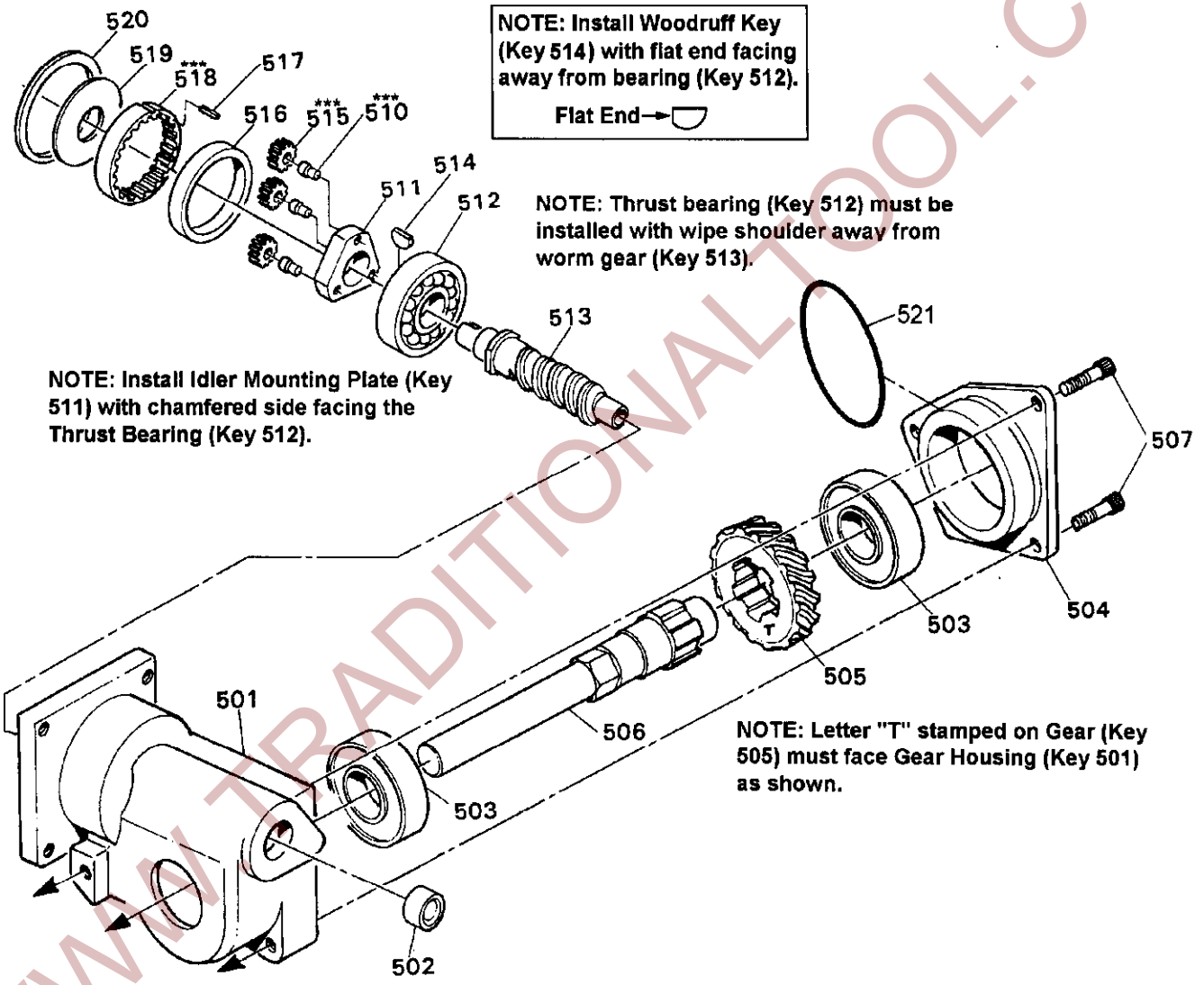
TENSIONER GEAR HOUSING ASSEMBLY

KEY	QTY	PART NO.	DESCRIPTION
501	1	274263	Tension gearcase front
502	1	008751	Needle bearing, Torrington #781
503	2	008754	Bearing, Fafnir #KP-12A
504	1	274264	Cover
505	1	008779	Worm gear
506	1	274238	Tensioner shaft
507	2	165438	SHCS, M6 x 16
510	3	008767	Idler pin
511	1	306475	Idler mounting plate
512	1	008756	Bearing, Fafnir #7203W
513	1	306476	Worm
514	1	306482	Woodruff key
515	3	008766	Gear, 12T
516	1	008769	Spacer
517	1	306480	Gear key
518	1	306477	Ring gear
519	1	306469	Thrust washer
520	1	306449	Washer
521	1	091208	O-Ring, #32

- When ordering parts, please show tool model, part number and description.
- Wearing parts are usually limited to those underlined and should be stocked.
- Standard hardware may be obtained at any local hardware supply.

⚠WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.



*** Lubricate with Molith No.2 or Lubriplate 3000W.

FEEDWHEEL GEAR HOUSING ASSEMBLY

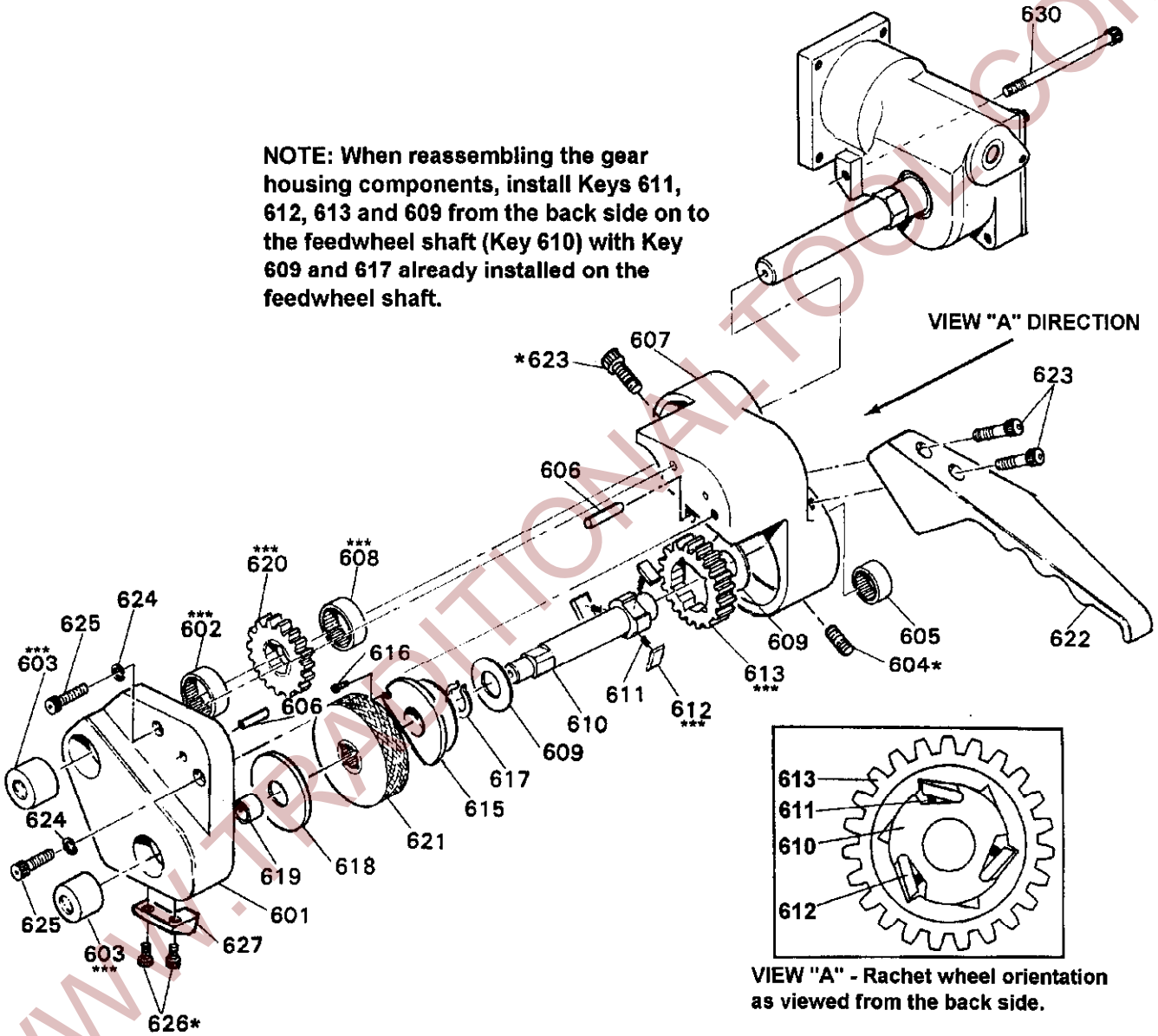
KEY	QTY	PART NO.	DESCRIPTION
601	1	274229	Outer link
602	1	269485	Bearing, HK #1516
603	2	306329	Bearing, BK #1512
604	1	170872	SHSS, flat point, M6 x 20
605	1	306330	Bearing, BK #1516
606	2	160329	Dowel pin, 6 x 24mm
607	1	274262	Housing
608	1	306331	Bearing, HK #1812
609	2	274231	Thrust washer
610	1	274230	Shaft, feedwheel
611	3	274118	Spring, Lee # LC-014B-2
612	3	274232	Pawl
613	1	306465	Gear, 23T
615	1	306470	Cover
616	1	162383	SHCS, M4 x 8
617	1	264434	E-Ring, 11-160-0150
618	1	274348	Spacer, feedwheel
619	1	306332	Inner ring, INA #IR12X15X12
620	1	306464	Gear, 19T
621	1	274241	Feedwheel
622	1	274249	Lift handle
623	3	010037	SHCS, m6 X 20
624	2	010077	Lock washer
625	2	174149	SHCS, M6 x 25
626	2	264647	SHCS, M4 x 6
627	1	274223	Strap guide (34)
630	1	306487	SHCS, M6 x 70

- When ordering parts, please show tool model, part number and description.
- Wearing parts are usually limited to those underlined and should be stocked.
- Standard hardware may be obtained at any local hardware supply.

⚠WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect a product's operation and can result in personal injury.

NOTE: When reassembling the gear housing components, install Keys 611, 612, 613 and 609 from the back side on to the feedwheel shaft (Key 610) with Key 609 and 617 already installed on the feedwheel shaft.



VIEW "A" - Rachet wheel orientation as viewed from the back side.

*** Secure with Loctite #242.**
***** Lubricate with Molith No.2 or Lubriplate 3000W.**

TROUBLESHOOTING

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

#1 - Difficult strap slack removal.
#2 - Tool does not tension when tension lever is pressed.
#3 - Strap tension is too low.
#4 - Strap tension is too high.
#5 - Tool does not complete sealing cycle.
#6 - Strap does not cut after sealing cycle.
#7 - Bottom strap breaks during sealing.

#1 SYMPTOM: Difficult strap slack removal.	
CAUSE	**REMEDY**
1. Improper strap being used.	1. Check that waxed strapping of the correct width is being used.
2. Ratchet wheel mechanism worn or broken.	2. Repair or replace ratchet wheel components.

#2 SYMPTOM: Tool does not tension when tension lever is pressed.	
CAUSE	**REMEDY**
1. Stop button in down position.	1. Pull up Stop button.
2. Improper strap being used.	2. Check that waxed strapping of the correct width is being used.
3. Feedwheel clearance incorrectly set.	3. Check feedwheel clearance, adjust if necessary.
4. Dirty or worn feedwheel.	4. Clean or replace feedwheel as required.
5. Straps improperly aligned.	5. Reload and realign straps.
6. Feedwheel not rotating.	6. Inspect tensioner gear housing for broken parts.

#3 SYMPTOM: Strap tension is too low.	
CAUSE	**REMEDY**
1. Strap tension incorrectly set.	1. Adjust strap tension per instructions in this manual.
2. Incorrect tool tensioner gearing for application.	*2. Replace tension motor/gearing with proper gearing for application.

* Consult your Signode Sales Representative for information on application requirements.

#4 SYMPTOM: Strap tension is too high.	
CAUSE	**REMEDY**
1. Strap tension incorrectly set.	1. Adjust strap tension per instructions in this manual.
2. Incorrect tool tensioner gearing for application.	*2. Replace tension motor/gearing with proper gearing for application.

* Consult your Signode Sales Representative for information on application requirements.

#5 SYMPTOM: Tool does not complete sealing cycle.	
CAUSE	**REMEDY**
1. Improper strap being used.	1. Check that waxed strapping of the correct width and thickness is being used.
2. Worn or broken dies and/or punch.	2. Inspect dies and punch replace as required.

#6 SYMPTOM: Strap does not cut after sealing cycle.	
CAUSE	**REMEDY**
1. Improper cutter clearance.	1. Inspect strap for proper cut-off, adjust cutter clearance if necesaary.
2. Worn or broken cutter blade.	2. Inspect cutter blade, replace or rotate as required.

#8 SYMPTOM: Bottom strap breaks during sealing.	
CAUSE	**REMEDY**
1. Improper cutter clearance. (Strap breaks at cutter.)	1. Inspect strap for proper cut-off, adjust cutter clearance if necesaary.
2. Tension set too high. (Strap breaks at the joint area.)	2. Reduce strap tension.
3. Worn or broken dies and/or punch. (Strap breaks at the joint area.)	3. Inspect dies and punch replace as required.
4. Package has sharp corners. (Strap breaks at package corner.)	4. Lower strap tension or use package corner protectors.

TOOL OPTIONS

CARRYING HANDLE
Part No. 306357

An optional carrying handle can be installed on any SPC tool. This option is for tools which are not suspended using the standard hanger but allows the operator to easily carry and position the tool. The carrying handle is secured to the tool using two existing M6 x 20 socket head cap screws. This option replaces the standard tool hanger.

BALANCE ARM ADAPTER
Part No. 306478

An optional balance arm adapter can be installed on any SPC tool. This option allows the tool to be used with a Signode Model BA-21A Balance Arm (Part No. 005630) and tool mount of choice. The balance arm adapter is secured to the tool using two existing M6 x 20 socket head cap screws. This option replaces the standard tool hanger.