

OPERATION, PARTS AND SAFETY MANUAL

SIGNODE®

SHP-34/100/114
POWER COMBINATION
STEEL STRAPPING TOOLS

PATENTS APPLIED FOR.

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. EYE HAZARD.

Failure to wear safety glasses with side shields can result in severe eye injury or blindness. Wear safety glasses with side shields which conform to ANSI standard Z87.1.



2. 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 tools 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 tension and sealing, can result in severe personal injury from flying strap. 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.

3. 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.



4. CUT HAZARD.

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



5. TRAINING .

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

6. TOOL CARE.

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

7. WORK AREA.

- Keep work areas uncluttered and well lighted.

SAFETY PROCEDURES FOR TOOL OPERATION

1. Before using this tool, read and understand the operating instructions found in this manual.
2. To prevent cylinder explosion, never operate this tool with a bottled air or gas power source.
3. Never operate the tool above recommended operating air pressures found in this manual.
4. Use an approved filter, regulator, lubricator.
5. For tension adjustments, follow the instructions in this manual. For all other adjustments, repairs or cleaning of the tool, disconnect air supply.
6. Retract strap end back into the dispenser when not in use.

CUTTING TENSIONED STRAP.

- Flying strap hazard. Using claw hammers, crowbars, chisels, axes or similar tools will cause tensioned strap to fly apart with hazardous force. Use only cutters designed for cutting strap. Read the instructions in the cutters 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 sales representative.

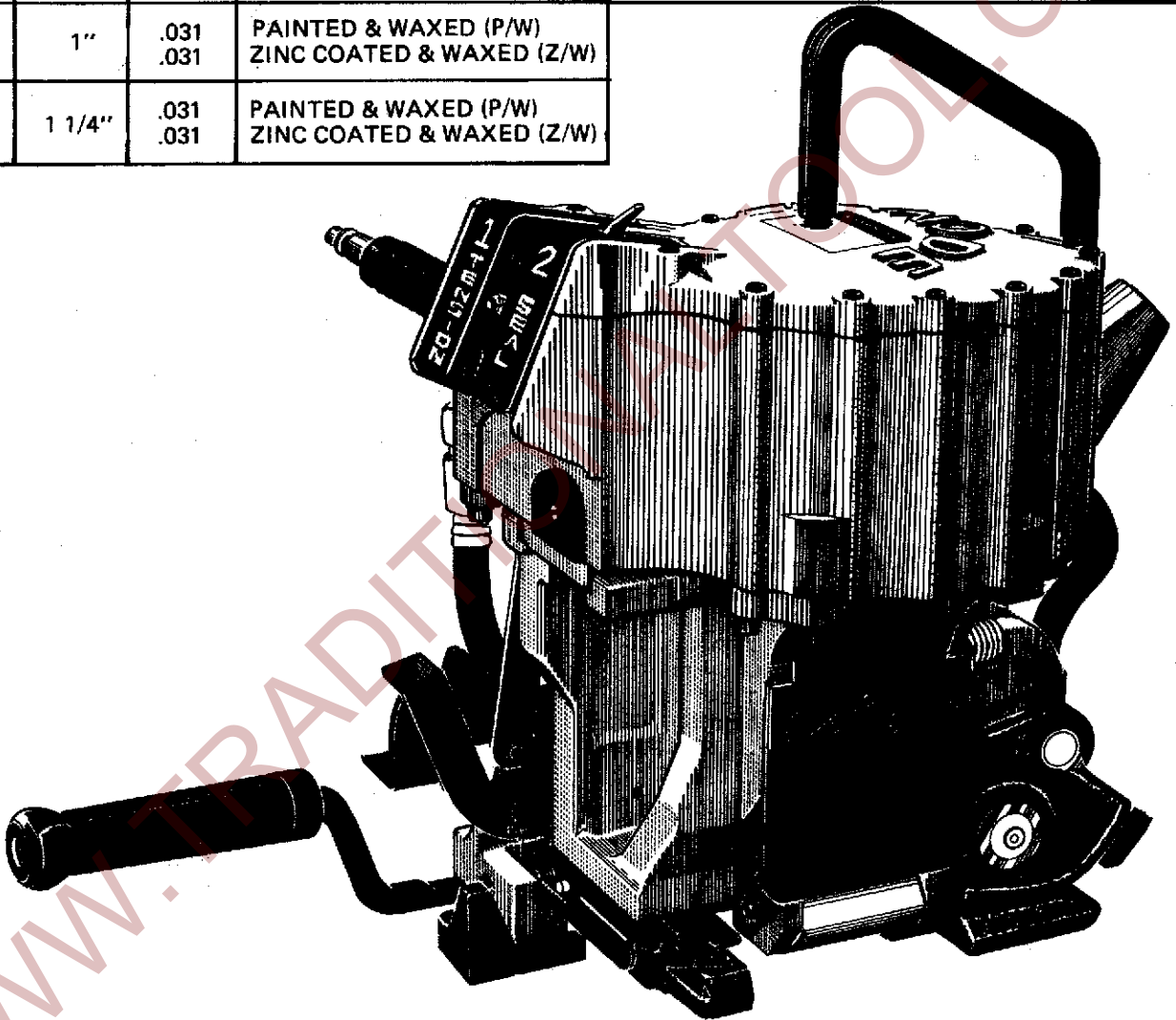
Su vendedor le puede proporcionar los instructivos de seguridad en español.

SHP-34/100/114

POWER COMBINATION STEEL STRAPPING TOOLS

SHP-34 PART NO. 260075
SHP-100 PART NO. 260090
SHP-114 PART NO. 260095

RECOMMENDED STRAP SIZES			
TOOL MODEL	STRAP WIDTH	GAUGE	MAGNUS STEEL STRAP SURFACE CONDITION
SHP-34	3/4"	.031 .031	PAINTED & WAXED (P/W) ZINC COATED & WAXED (Z/W)
SHP-100	1"	.031 .031	PAINTED & WAXED (P/W) ZINC COATED & WAXED (Z/W)
SHP-114	1 1/4"	.031 .031	PAINTED & WAXED (P/W) ZINC COATED & WAXED (Z/W)



CONTENTS

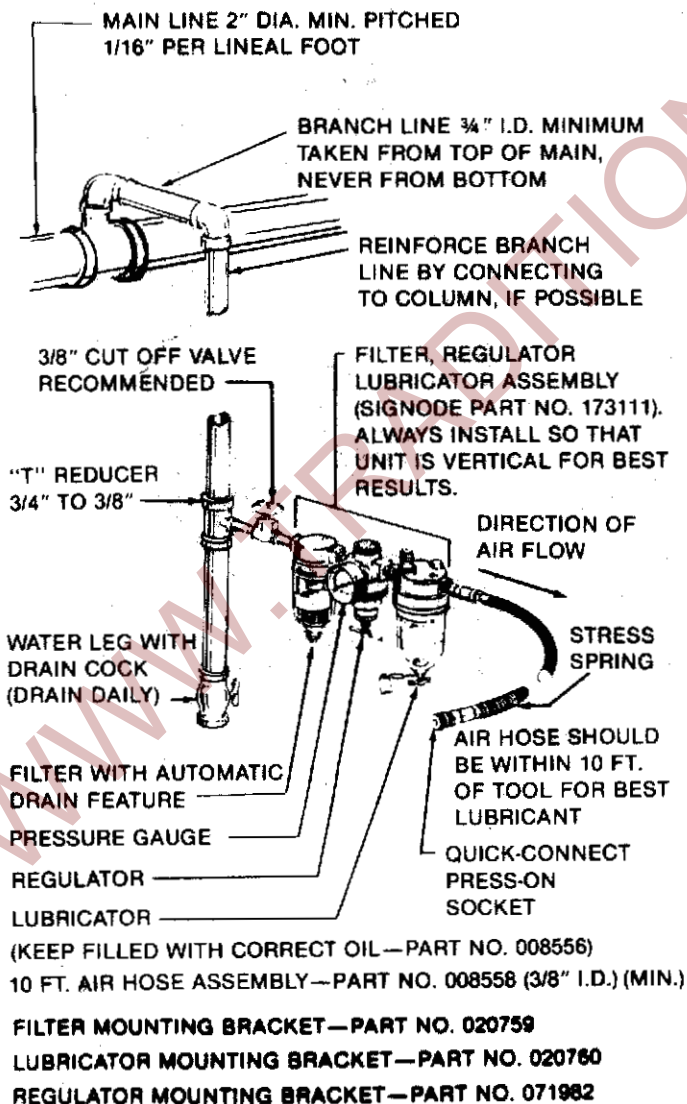
Safety Instructions	2
Recommended Air Line	
Piping Instructions	4-5
Operating Instructions	6-11
Adjustments	
Strap Tension	12
Cutter Block	13
Cylinder Leaks	14

Parts Replacement	
Strap Gripper	15-16
Cutter Block	15-16
Feedwheel	17
Clutch Plug	17
Tool Repair	
Sealer Mechanism	18-21
Troubleshooting	22-25
Parts List	26-37
Air Motor	38

RECOMMENDED AIR LINE PIPING INSTALLATION FOR PNEUMATIC TOOLS

INSTALLATION

IF COMPRESSOR HAS 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 SEALER WITH BOTTLED GAS
OR AIR SOURCE.
MAXIMUM OPERATING PRESSURE IS 90 P.S.I.

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 of the Signode unit (Part No. 173111).

NOTE: Additional information is available in the Signode publication, "Air Supply Manual," (P. 25, E-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 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, however, and should require no adjustment. If 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°F. (0.15 to 0.25 cm²/sec. at 38°C), 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 to 1 with kerosene.

NOTE: 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 air tools do not operate satisfactorily in freezing temperatures, certain steps can correct the problem.

The best system will employ:

- a. An air line dryer adjacent to the compressor.
- b. The filter-regulator-lubricator installed in hot box, using a light bulb or electric heater for warmth. The colder the temperature, the more sluggish the oil, thus reducing lubrication to the air tool. A hot box will keep the oil and collected water thawed out. A 60 to 100 watt household light bulb in the box is sufficient. An alternative is a small industrial radiant-type heater of 60 to 100 watt.



- c. A hot box large enough to contain the air tool and air hose in addition to the filter-regulator-lubricator. To help assure satisfactory operation in freezing temperatures, keep the tool and its hose warm when not in use.

d. The use of recommended lubricant. The Signode Corporate Product Reliability and Safety department has tested anti-freezes. None works well in air tools; the tools gum 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 listed above.

TOOL INSTALLATION

To operate effectively, your tool must be installed properly. This installation includes proper suspension of the tool over the package to be strapped; correct placement of a strapping dispenser to provide a continuous easy supply of strap for the application; and a satisfactory air supply.

OPERATING INSTRUCTIONS

WARNING

Before operating tool,
read the safety instructions
in this manual.

Wear safety glasses.

1 ENCIRCLE
THE PACKAGE
WITH STRAP
AS SHOWN

NOTE: Make sure there are no kinks
or twists in the strap as it is being
placed around the package.

LEAD END OF STRAP,
WILL BE BOTTOM STRAP
WHEN PLACED IN TOOL.

TOP STRAP

2 INSERT THE
LEAD END
OF STRAP

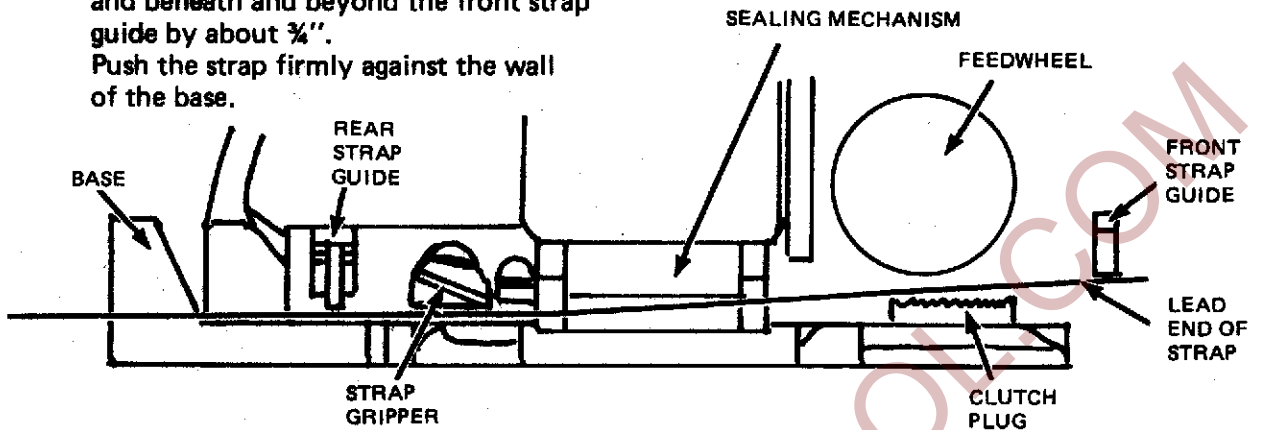
FRONT
STRAP
GUIDE

TOP STRAP

PROPER STRAP PLACEMENT IN TOOL

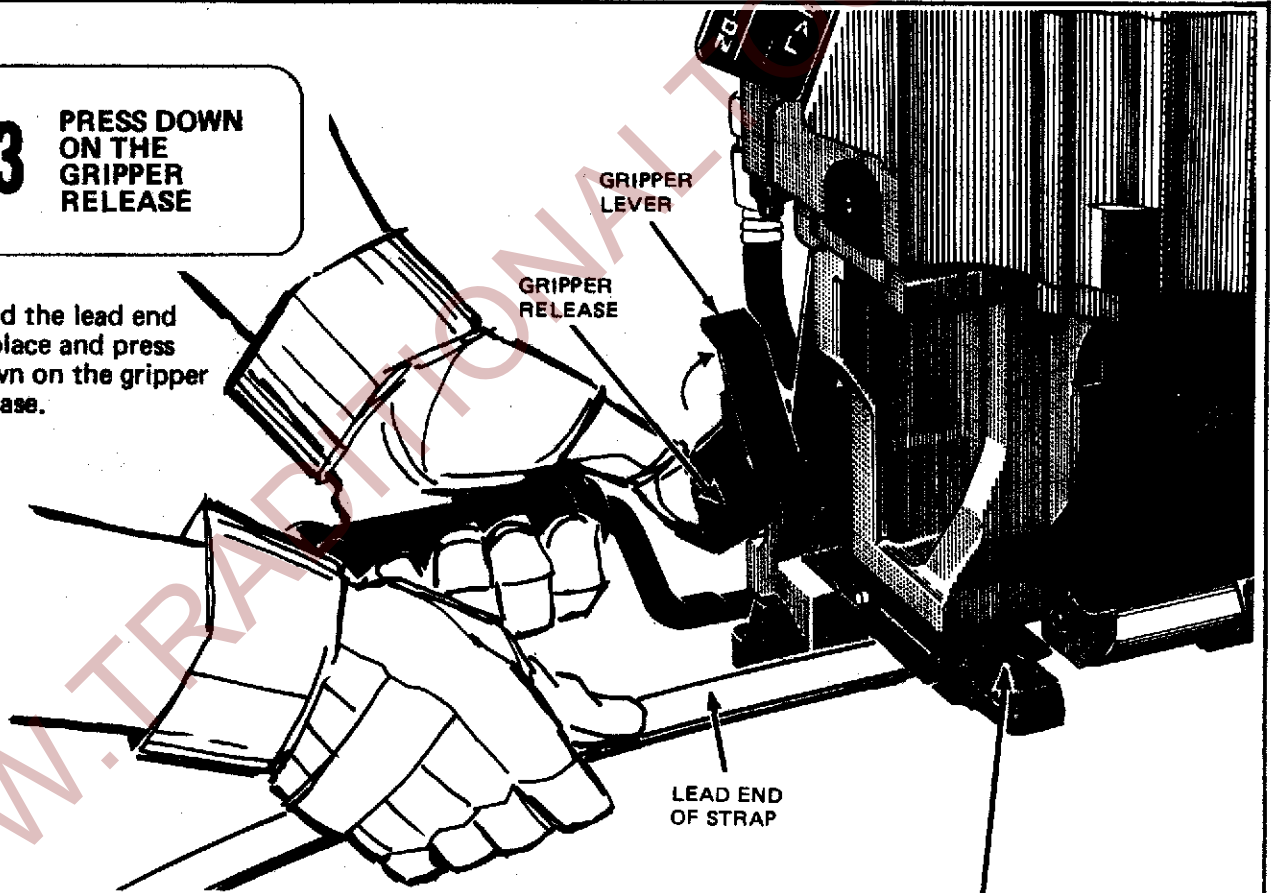
The lead end of the strap is placed beneath the front strap guide and the strap gripper, between the feedwheel and clutch plug, and beneath and beyond the front strap guide by about $\frac{3}{4}$ ".

Push the strap firmly against the wall of the base.

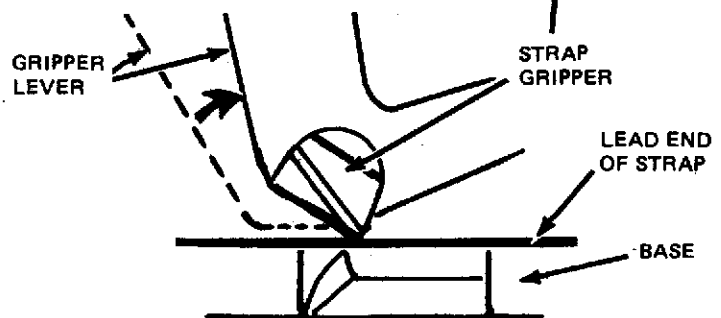


3 PRESS DOWN ON THE GRIPPER RELEASE

Hold the lead end in place and press down on the gripper release.

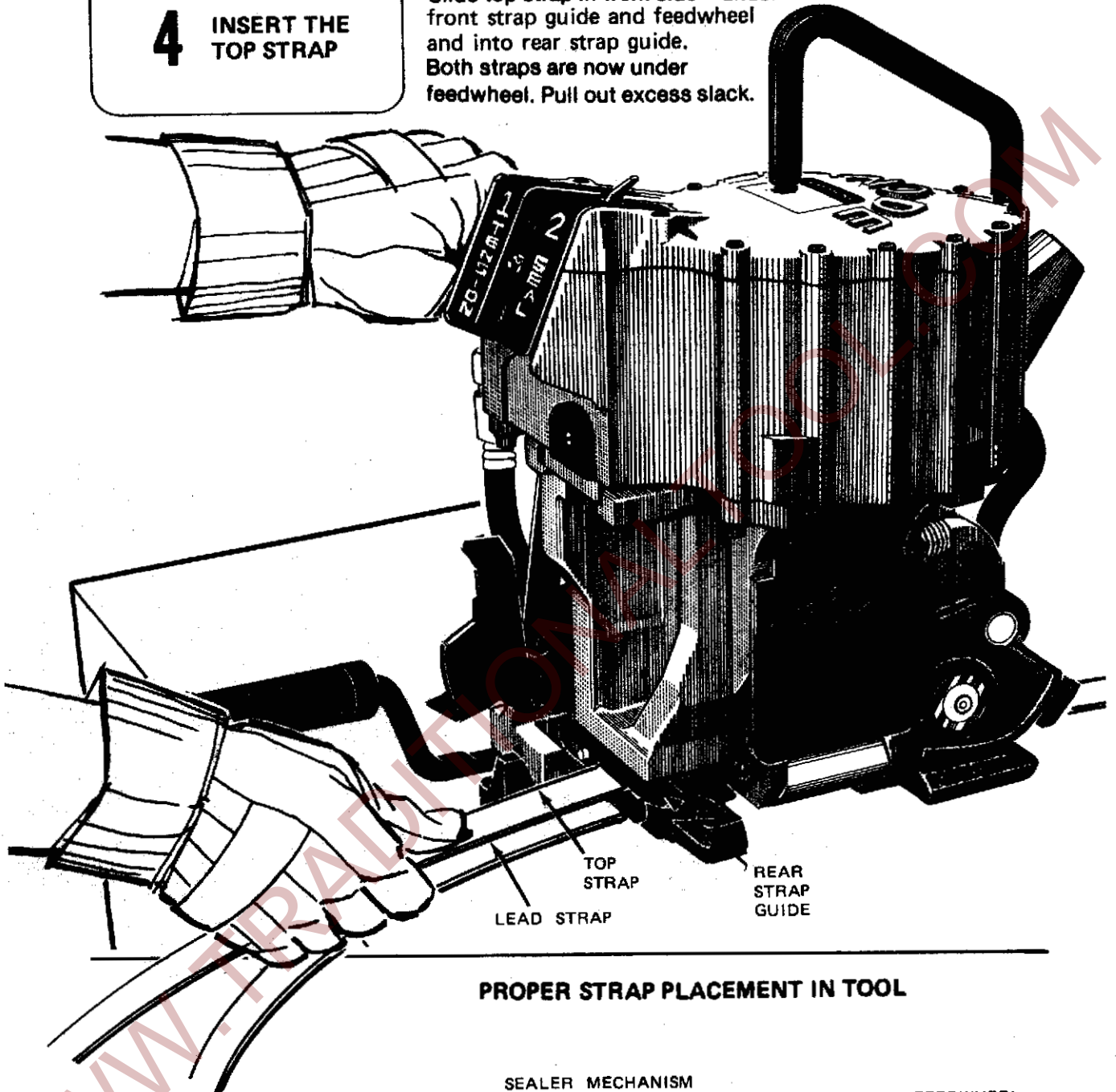


This will allow the strap gripper to turn and lock the lead end of the strap into the tool.

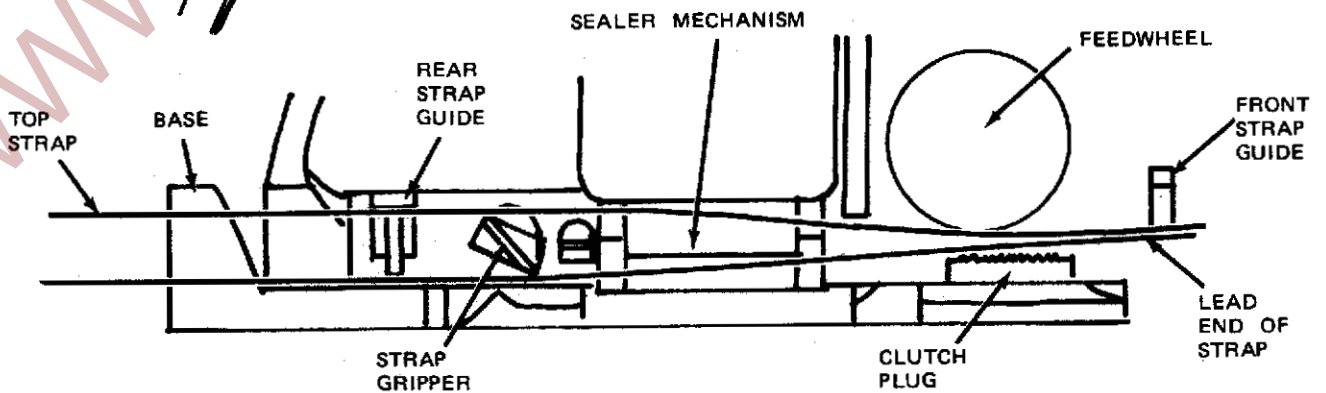


4 INSERT THE TOP STRAP

Grasp handle at air inlet as shown! Slide top strap in from side—under front strap guide and feedwheel and into rear strap guide. Both straps are now under feedwheel. Pull out excess slack.



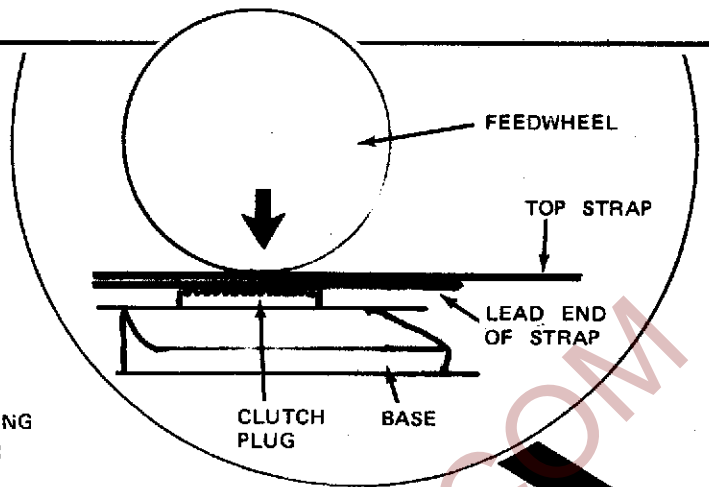
PROPER STRAP PLACEMENT IN TOOL



5

**PRESS DOWN
ON THE
TENSIONING
LEVER**

This will drop the feedwheel down upon the straps and activate the tensioning process.



TENSIONING
LEVER

VALVE LATCH
SEE NOTE 3, BELOW

NOTE 1: The valve latch is designed to provide a lock so that the seal lever cannot be pressed without first pressing the tension lever. The numbers 1 & 2 on the tension and sealer levers indicate the order of operation.

NOTE 2: If it is necessary to place corner protectors on the package, the tension lever can be pressed part way down until a click is heard. This will drop the feedwheel on the strap, holding it in place without activating the tensioning process. When the corner protectors are in place, pressing the tension lever the rest of the way down will initiate tension.

NOTE 3: The tension portion of the cycle may be stopped by pushing the valve latch in the direction as shown, which releases the tensioning lever.

6 PRESS DOWN ON THE SEALER LEVER

Motor will stall when desired tension is reached.

Press sealer lever all the way down, then release.

Do not hold tensioner lever down while pressing sealer lever as tensioning lever will be released automatically.

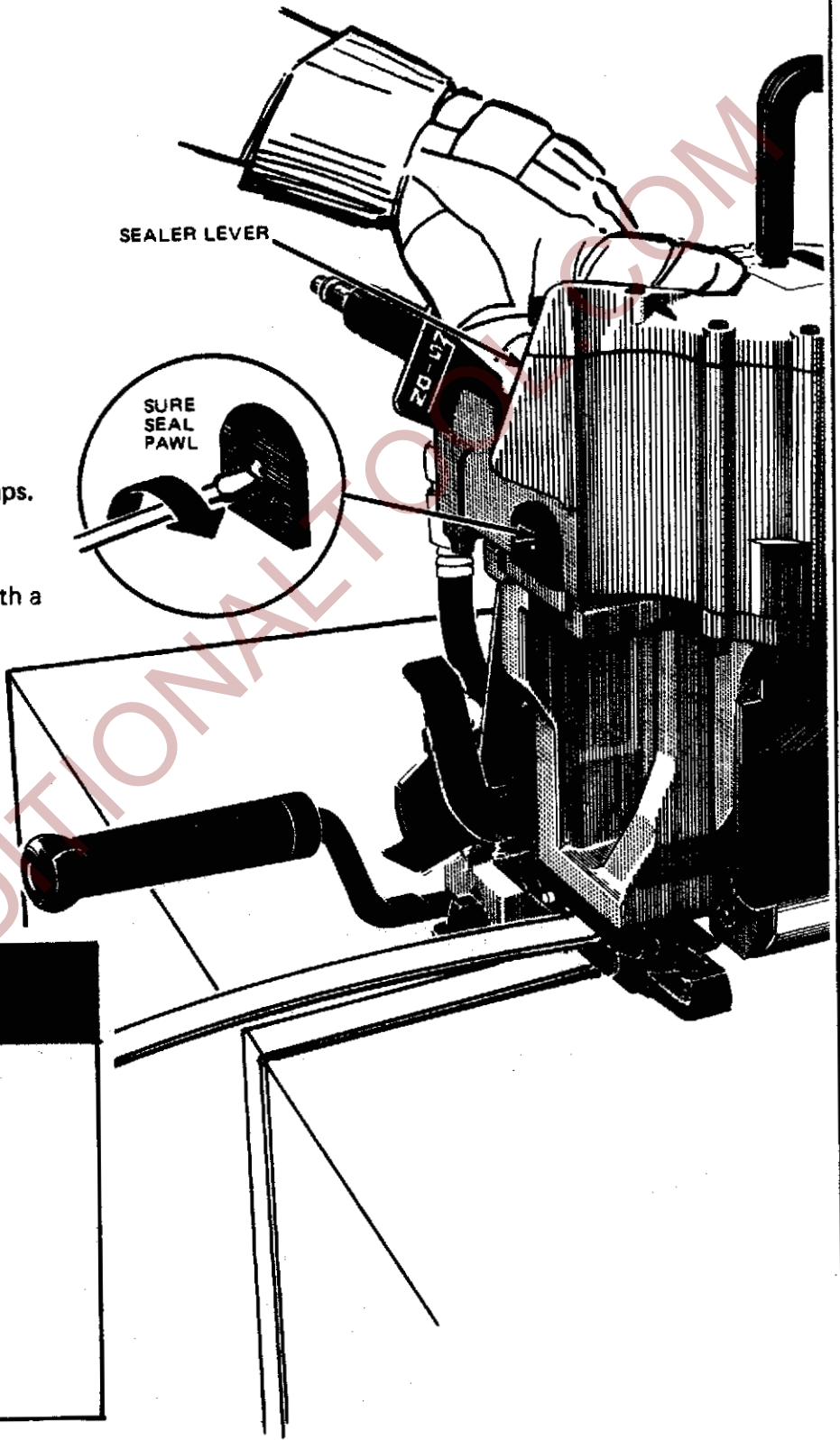
The tool will automatically cut off the top strap and punch both top and bottom straps.

NOTE: If the tool does not complete the sealing cycle, turn sure seal pawl clockwise with a screwdriver as shown in the inset, to return the sealer mechanism.

(See Troubleshooting.)

SEALER LEVER

SURE SEAL PAWL



DANGER

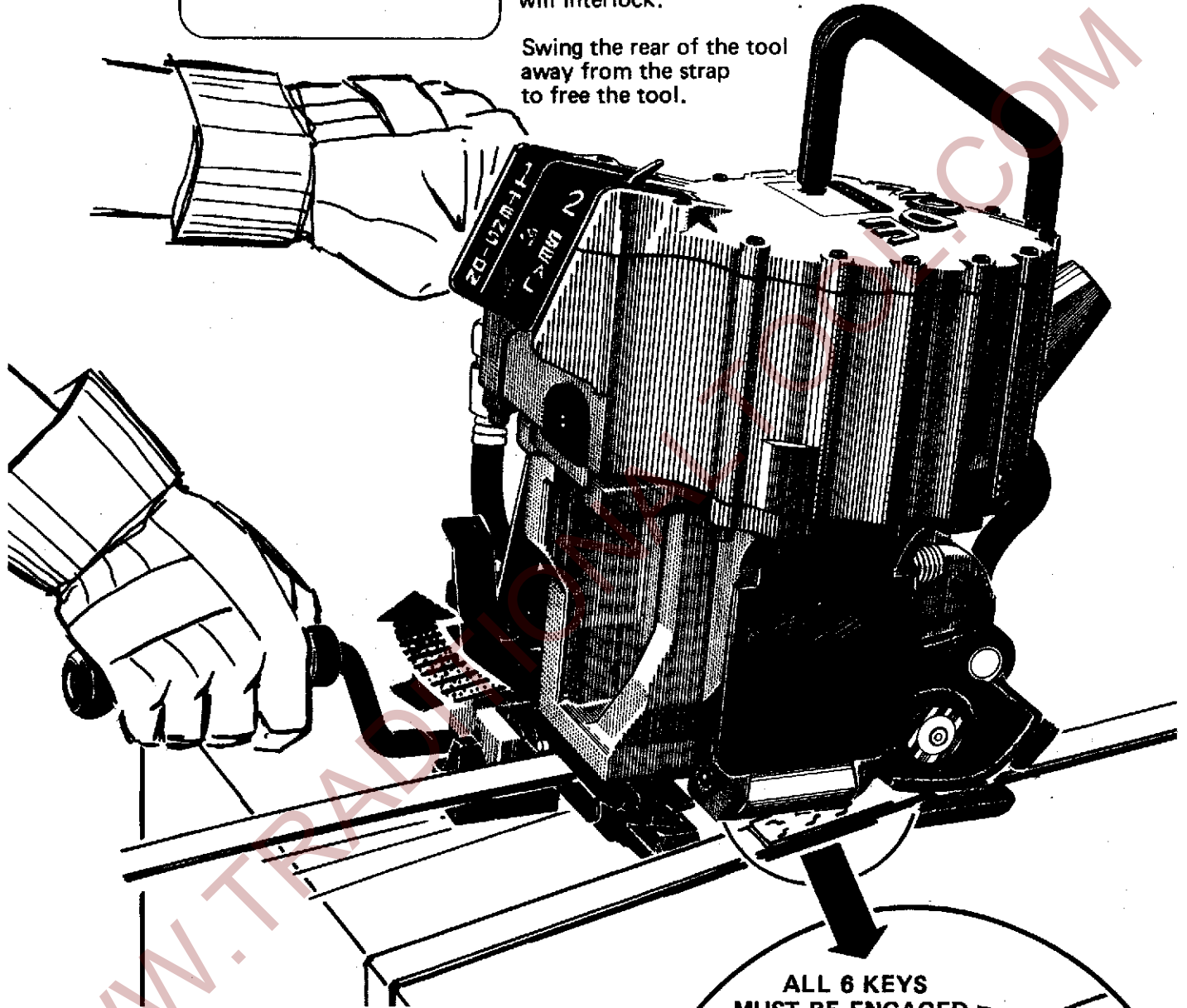
Care must be taken when returning the sealer mechanism using the sure seal pawl or removing the tool from a partially sealed strap as flying ends on the strap could injure the operator.

See Safety Instructions:
Page 2, Item 2.

7 REMOVE THE TOOL

After the tool has completed the punching operation and the sealing mechanism has retracted, the feedwheel will automatically raise and the punched strap will interlock.

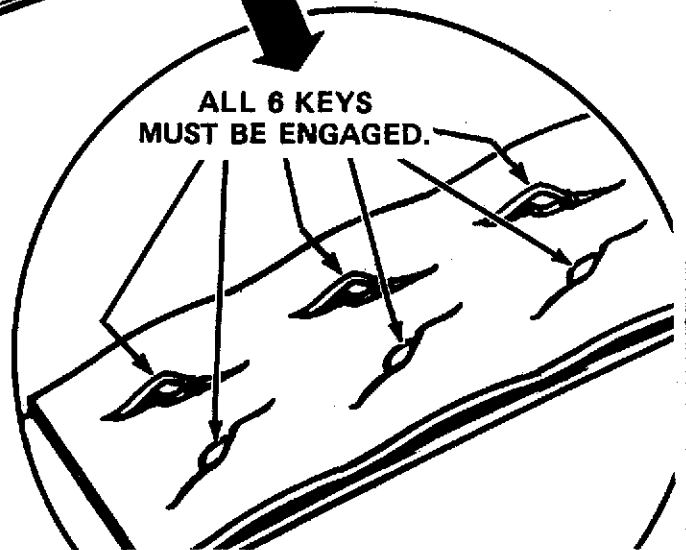
Swing the rear of the tool away from the strap to free the tool.



**ALL 6 KEYS
MUST BE ENGAGED.**

! WARNING

After the punching operation has been completed, all six keys must be engaged. If not, then cut strap and apply another. If all six keys are still not engaged, check for worn or broken sealer parts and replace accordingly. If this still does not solve the problem, contact your local Signode Representative.



ADJUSTMENTS

DANGER

STRAP BREAKAGE HAZARD

Improper operation of the tool, or sharp corners on the load can result in strap breakage during tensioning.

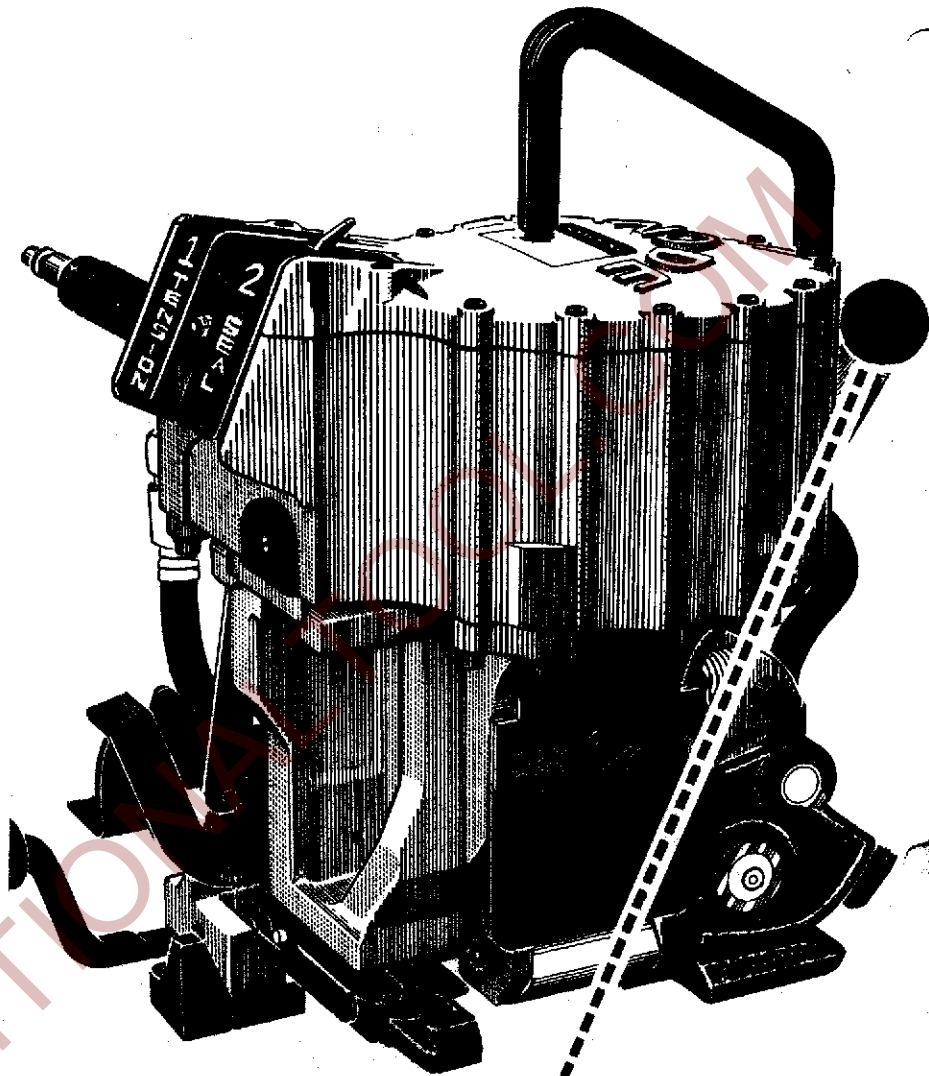
Failure to wear safety glasses with side shields can result in severe eye injury or blindness.

Wear safety glasses which conform to ANSI Standard Z87.1.

MAXIMUM AIR PRESSURE

IS 90 p.s.i.g.

Exceeding the maximum air pressure can result in strap breakage or tool failure.

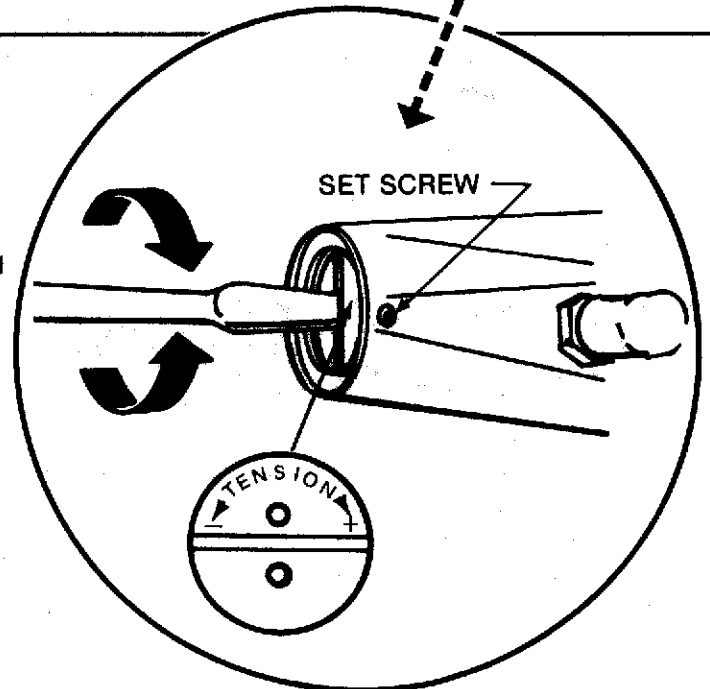


STRAP TENSION ADJUSTMENT

Do not control tension by adjusting the regulator lubricator assembly outside of the permissible range of 75-90 p.s.i.g..

Strap tension is positively controlled by turning the pressure adjustment screw clockwise or counter clockwise. Turning clockwise (in) will increase strap tension (→ +) and turning counter clockwise (out) will decrease strap tension (→ -).

Loosen the set screw and adjust the pressure adjustment screw to obtain the desired tension level. If the strap should break while drawing tension, turn the pressure adjustment screw counter clockwise to reduce tension. When the desired tension level has been reached, tighten the set screw.

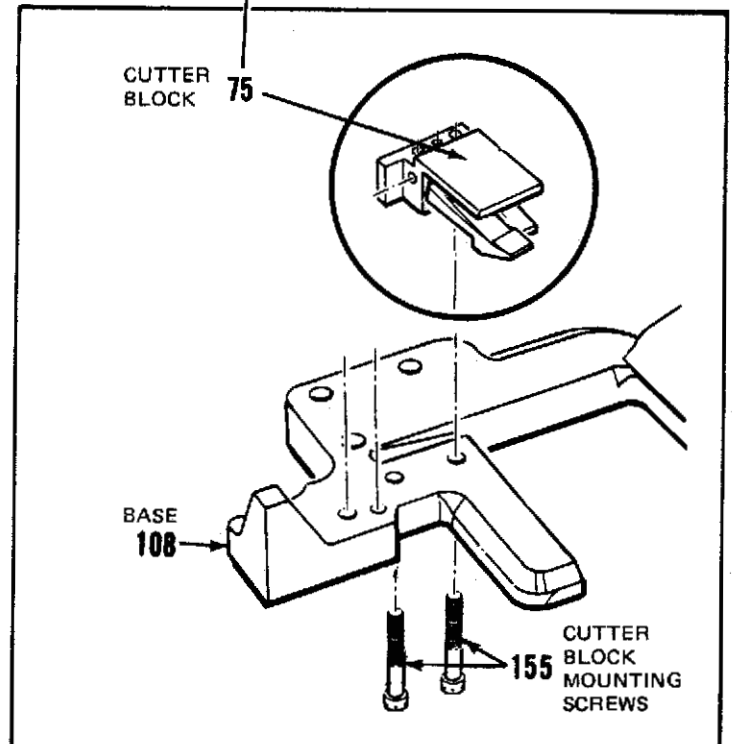
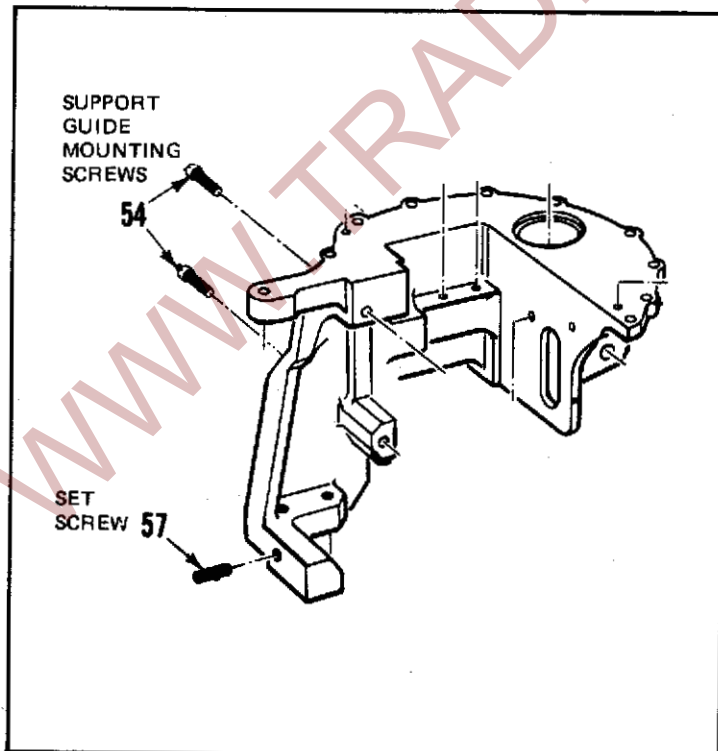
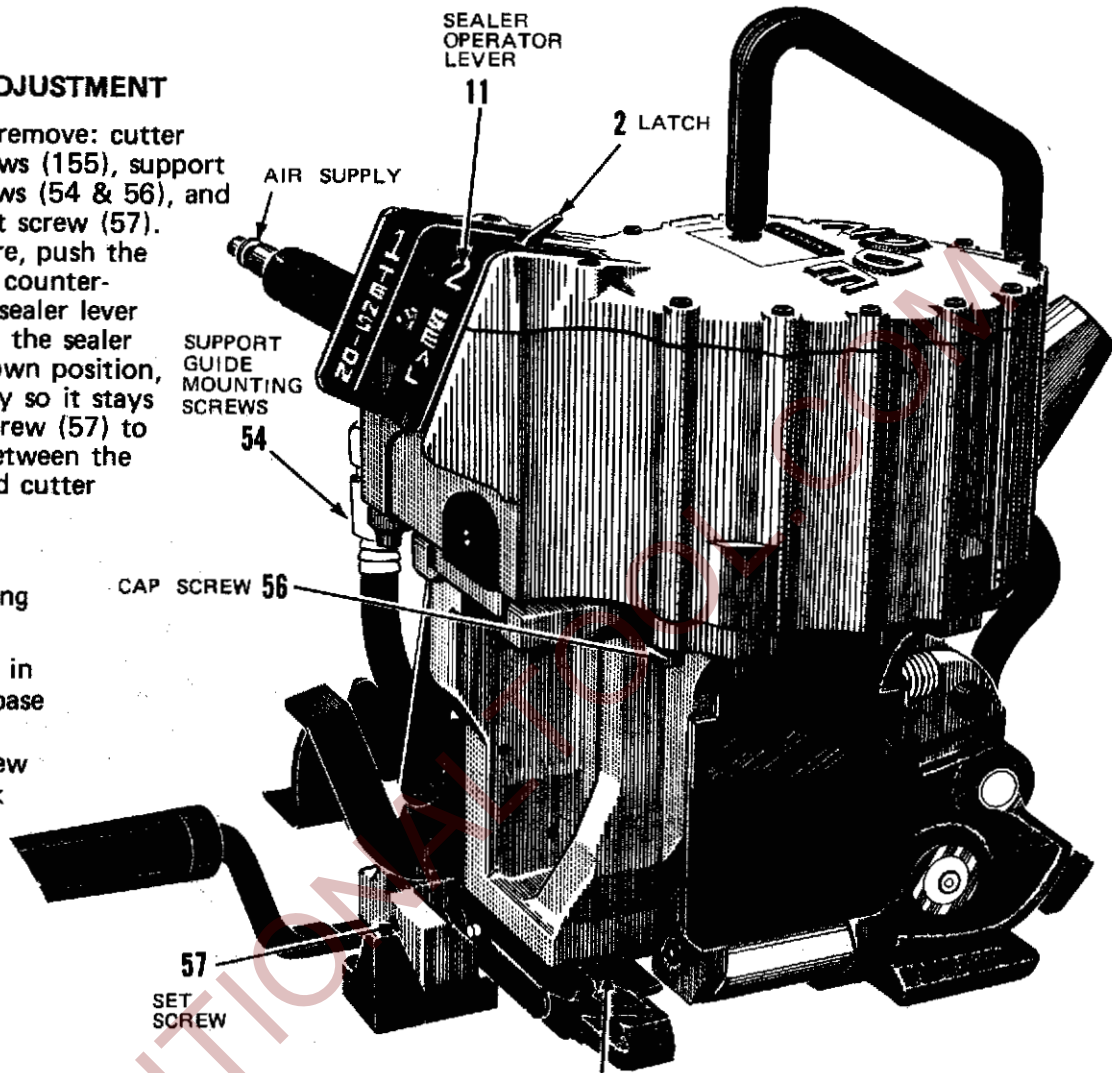


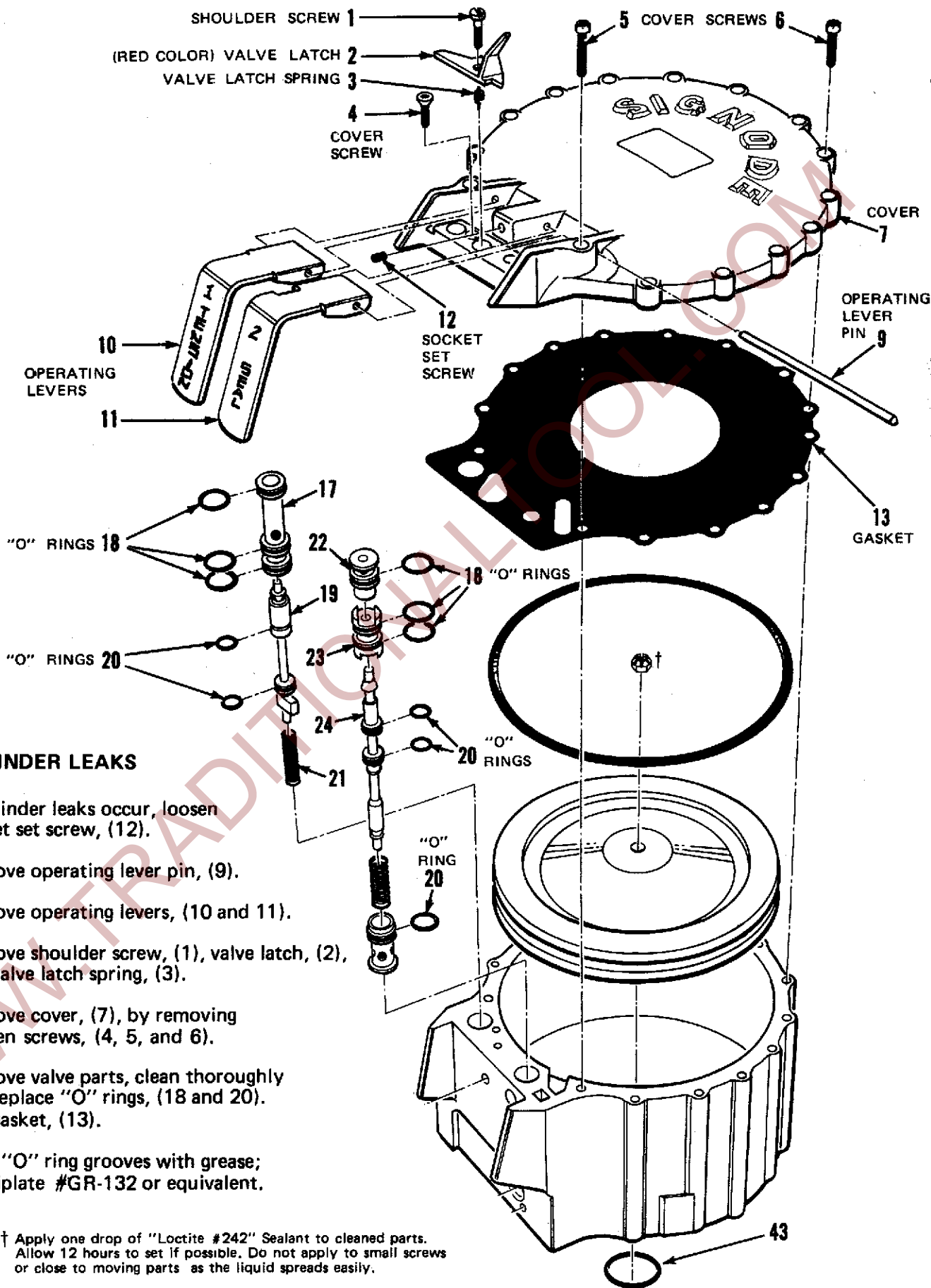
CUTTER BLOCK ADJUSTMENT

Loosen, but do not remove: cutter block mounting screws (155), support guide mounting screws (54 & 56), and cutter adjustment set screw (57). Using low air pressure, push the latch (2) forward or counter-clockwise. Press the sealer lever (11) down, and with the sealer mechanism in the down position, remove the air supply so it stays down. Tighten set screw (57) to decrease clearance between the cutter block (75) and cutter plate (88).

Proceed to tighten screws in the following order:

- A. Two cap screws in the bottom of base (155).
- B. Bottom cap screw (54) in the back of the sealer frame (44).
- C. Top cap screw (54) in back of sealer frame.
- D. Two cap screws (56) that attach support guide (69) to cylinder.





CYLINDER LEAKS

If cylinder leaks occur, loosen socket set screw, (12).

Remove operating lever pin, (9).

Remove operating levers, (10 and 11).

Remove shoulder screw, (1), valve latch, (2), and valve latch spring, (3).

Remove cover, (7), by removing sixteen screws, (4, 5, and 6).

Remove valve parts, clean thoroughly and replace "O" rings, (18 and 20), and gasket, (13).

Pack "O" ring grooves with grease; Lubriplate #GR-132 or equivalent.

† Apply one drop of "Loctite #242" Sealant to cleaned parts. Allow 12 hours to set if possible. Do not apply to small screws or close to moving parts as the liquid spreads easily.

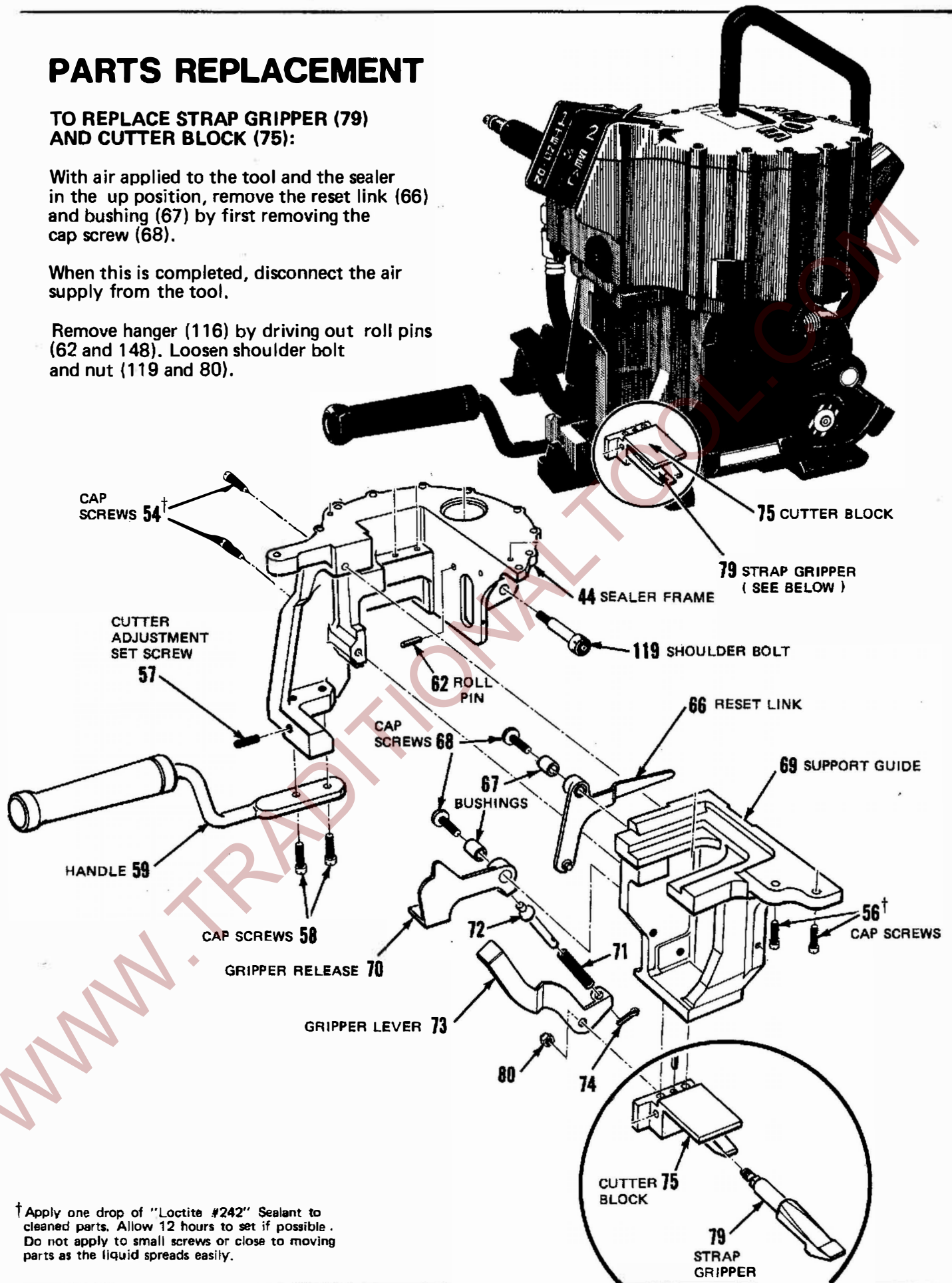
PARTS REPLACEMENT

TO REPLACE STRAP GRIPPER (79) AND CUTTER BLOCK (75):

With air applied to the tool and the sealer in the up position, remove the reset link (66) and bushing (67) by first removing the cap screw (68).

When this is completed, disconnect the air supply from the tool.

Remove hanger (116) by driving out roll pins (62 and 148). Loosen shoulder bolt and nut (119 and 80).



† Apply one drop of "Loctite #242" Sealant to cleaned parts. Allow 12 hours to set if possible. Do not apply to small screws or close to moving parts as the liquid spreads easily.

Remove the handle (59) by removing the two cap screws (58).

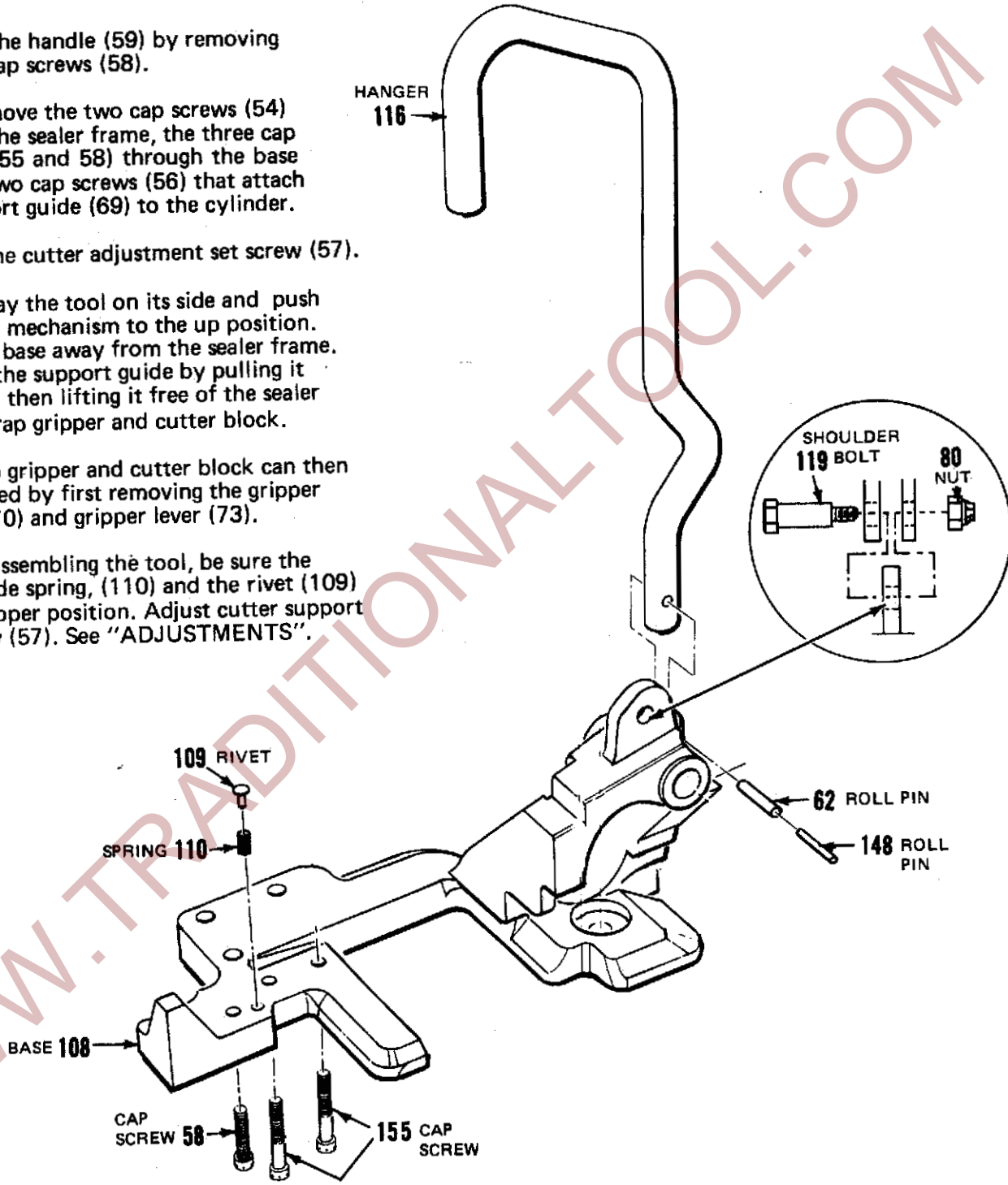
Next, remove the two cap screws (54) through the sealer frame, the three cap screws (155 and 58) through the base and the two cap screws (56) that attach the support guide (69) to the cylinder.

Loosen the cutter adjustment set screw (57).

Finally, lay the tool on its side and push the sealer mechanism to the up position. Pivot the base away from the sealer frame. Remove the support guide by pulling it rearward, then lifting it free of the sealer frame, strap gripper and cutter block.

The strap gripper and cutter block can then be replaced by first removing the gripper release (70) and gripper lever (73).

When reassembling the tool, be sure the strap guide spring, (110) and the rivet (109) are in proper position. Adjust cutter support set screw (57). See "ADJUSTMENTS".



REPLACING THE FEEDWHEEL

To change a dirty or worn feedwheel drive out the roll pin (62). Remove the outer link (111), bushing (112) and feedwheel (113).

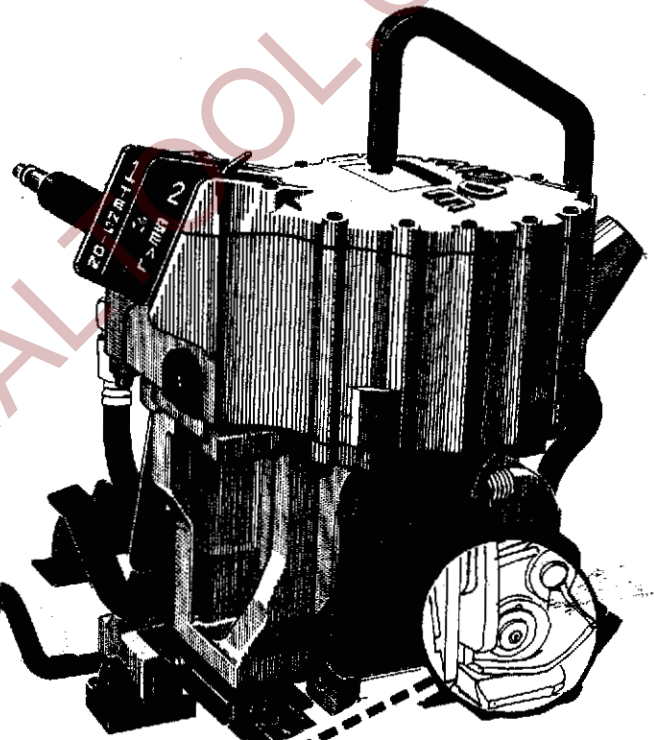
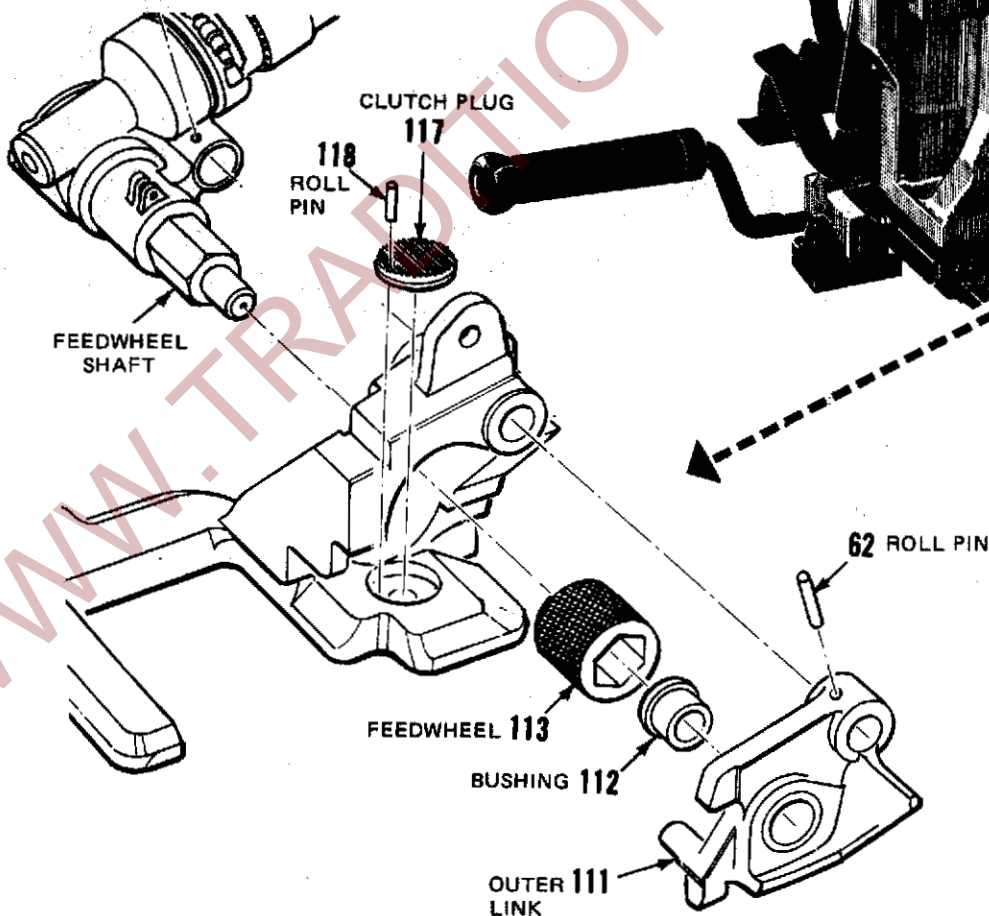
Replace the feedwheel and reassemble the parts in reverse order.

REPLACING THE CLUTCH PLUG

Turn the tool on its side. Remove feedwheel as per the above instructions. Using a punch drive the plug (117) and roll pin (118) upward and out.

Make certain a roll pin is properly installed in the new clutch plug. Drop the new clutch plug with roll pin into the hole in the base properly aligning the roll pin with its hole. Drive both downward with a brass rod or reinstall the feedwheel and use a strap under tension to set the plug. **Caution: Do not use a hardened drift or rod against the plug to set it since it will damage the teeth.**

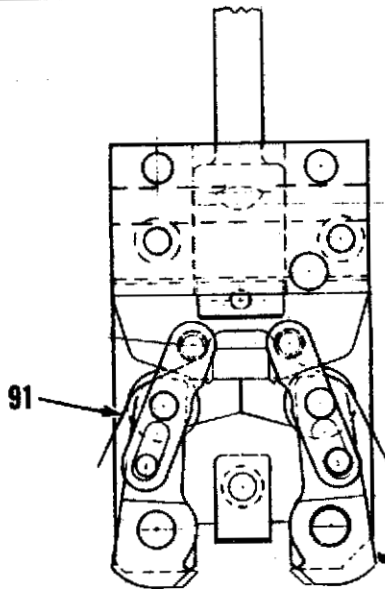
Reinstall the feedwheel.



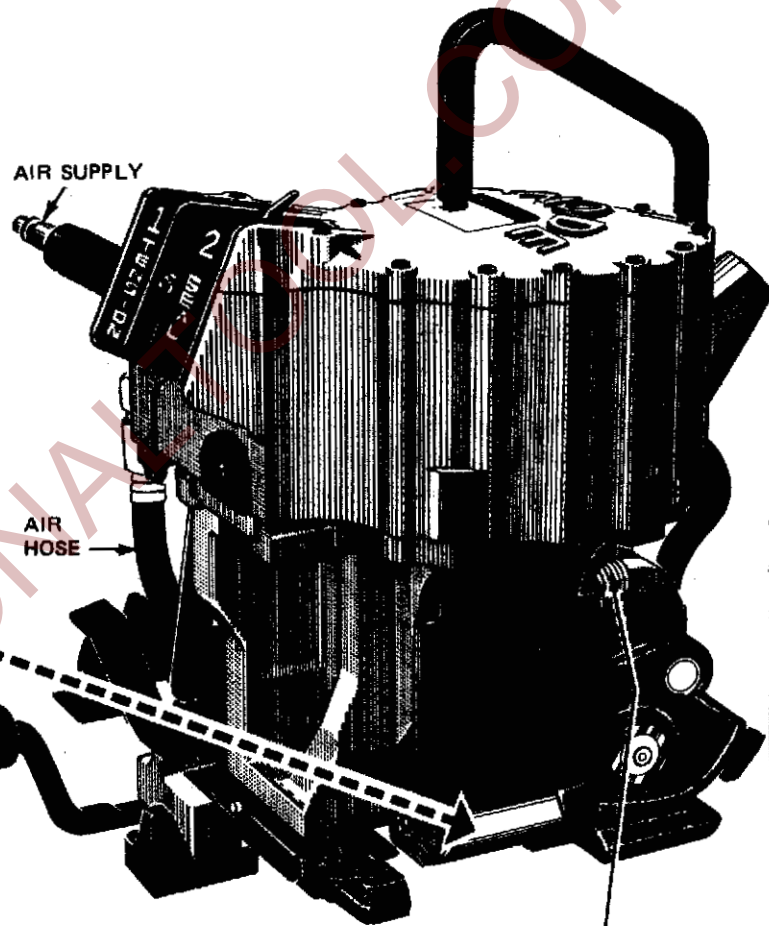
TOOL REPAIR

HOW TO REPAIR THE SEALER MECHANISM

Tools Needed: 3 Allen Wrenches, 3/16 & 1/4 Drift Pins, 11/16 Open End Wrench, Medium Screwdriver, and Hammer.

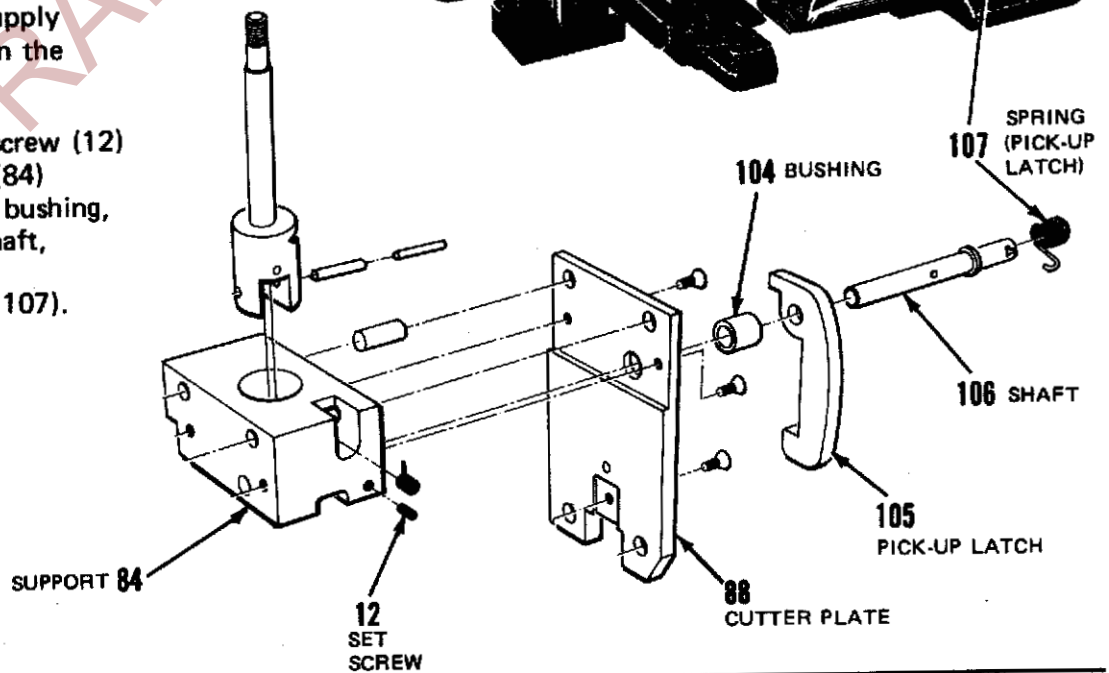


SEALER MECHANISM, WITH CUTTER PLATE (88) REMOVED SHOWING ASSEMBLED POSITION OF JAW SPRING (91).



Disconnect air supply with the sealer in the up position.

Loosen the set screw (12) in the support (84) and remove the bushing, pick-up latch, shaft, and spring (104, 105, 106, 107).



Remove reset link (66) by removing cap screw (68).

Remove hanger (116) by driving out roll pins (62 and 148).

Remove the air hose assembly (34) at the cylinder end only.

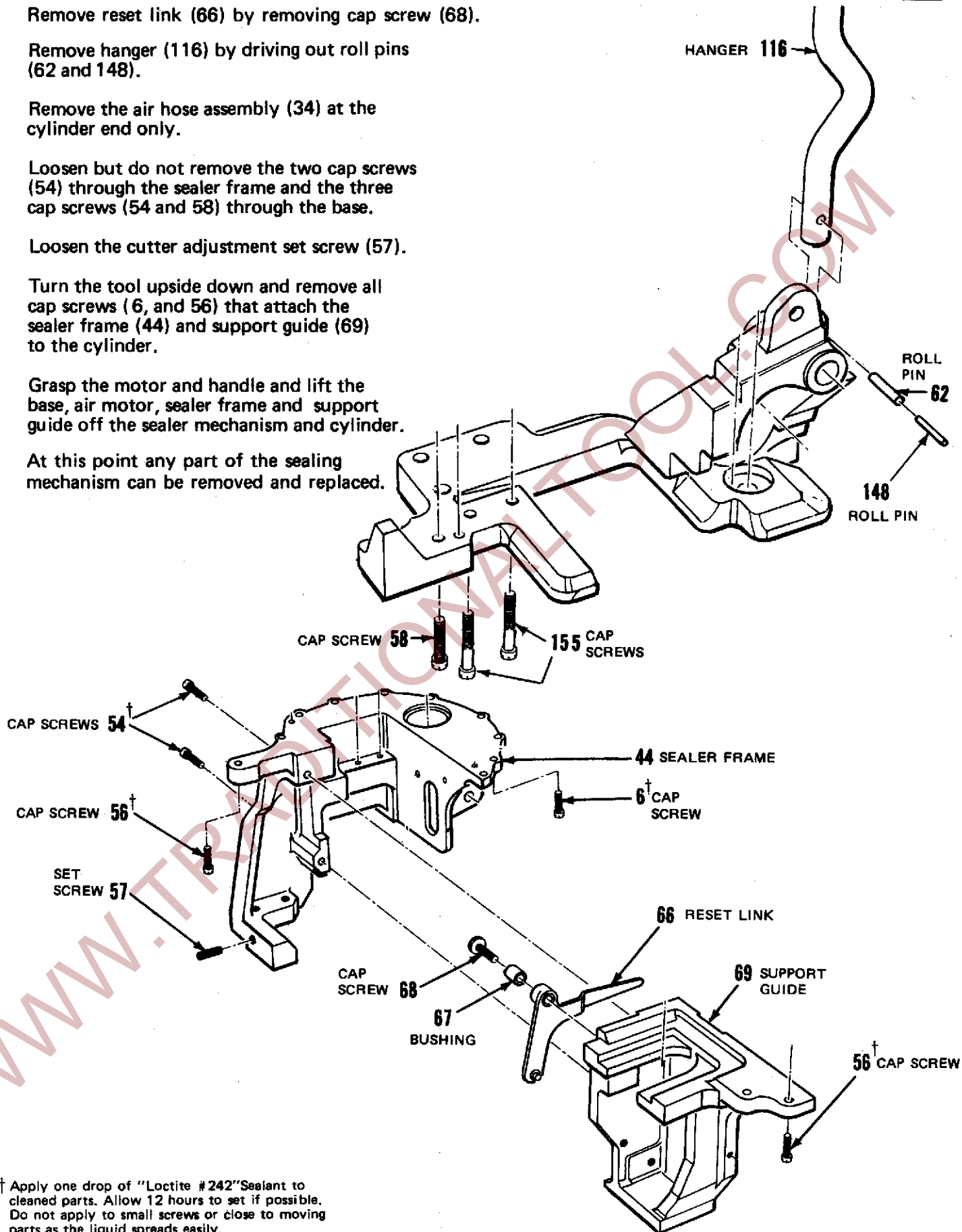
Loosen but do not remove the two cap screws (54) through the sealer frame and the three cap screws (54 and 58) through the base.

Loosen the cutter adjustment set screw (57).

Turn the tool upside down and remove all cap screws (6, and 56) that attach the sealer frame (44) and support guide (69) to the cylinder.

Grasp the motor and handle and lift the base, air motor, sealer frame and support guide off the sealer mechanism and cylinder.

At this point any part of the sealing mechanism can be removed and replaced.



† Apply one drop of "Loctite #242" Sealant to cleaned parts. Allow 12 hours to set if possible. Do not apply to small screws or close to moving parts as the liquid spreads easily.

REASSEMBLY PROCEDURE

1. When reassembling cam (93) to ram (81) turn indent in ram pin (82) towards threaded hole in cam slot. Place a drop of Loctite #242 on cone point set screw (83). Tighten screw until snug. Then turn screw out 1/4 turn.
2. After reassembling the sealer mechanism replace other parts in reverse order.
3. For ease of assembling the reset link (66) and pick-up latch (105) mechanism, push sealer mechanism into up position.
4. After the pickup latch, shaft, bushing and spring are in place, in order to get the proper tension on the spring, insert a screwdriver in the end of the shaft and rotate approximately 1/2 turn counter

clockwise as viewed from the front of the tool.

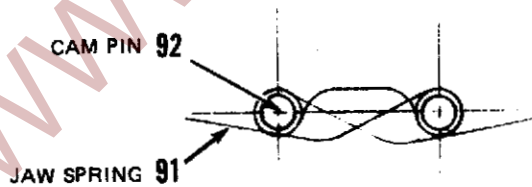
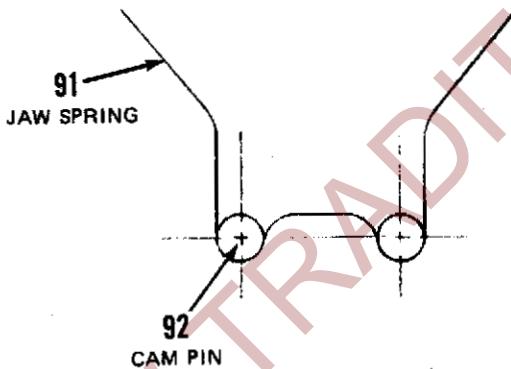
Turn the set screw (12) in until it seats in the hole in the shaft. Then back screw out 1/4 turn.

5. Readjust cutter per instructions on page 13.

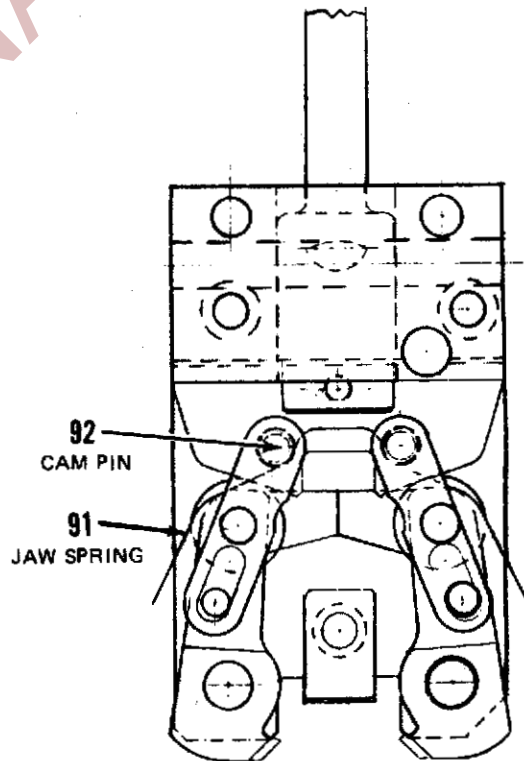
NOTE:

1. Press large roll pin (150) into ram so pin extends 1 3/16 as shown. Press small roll pin (151) into large roll pin to same dimension.
2. After the necessary repairs have been made, grease the parts using Dow Corning Molykote G-M Paste or equivalent.
3. Do not damage o-rings when assembling follower pin.

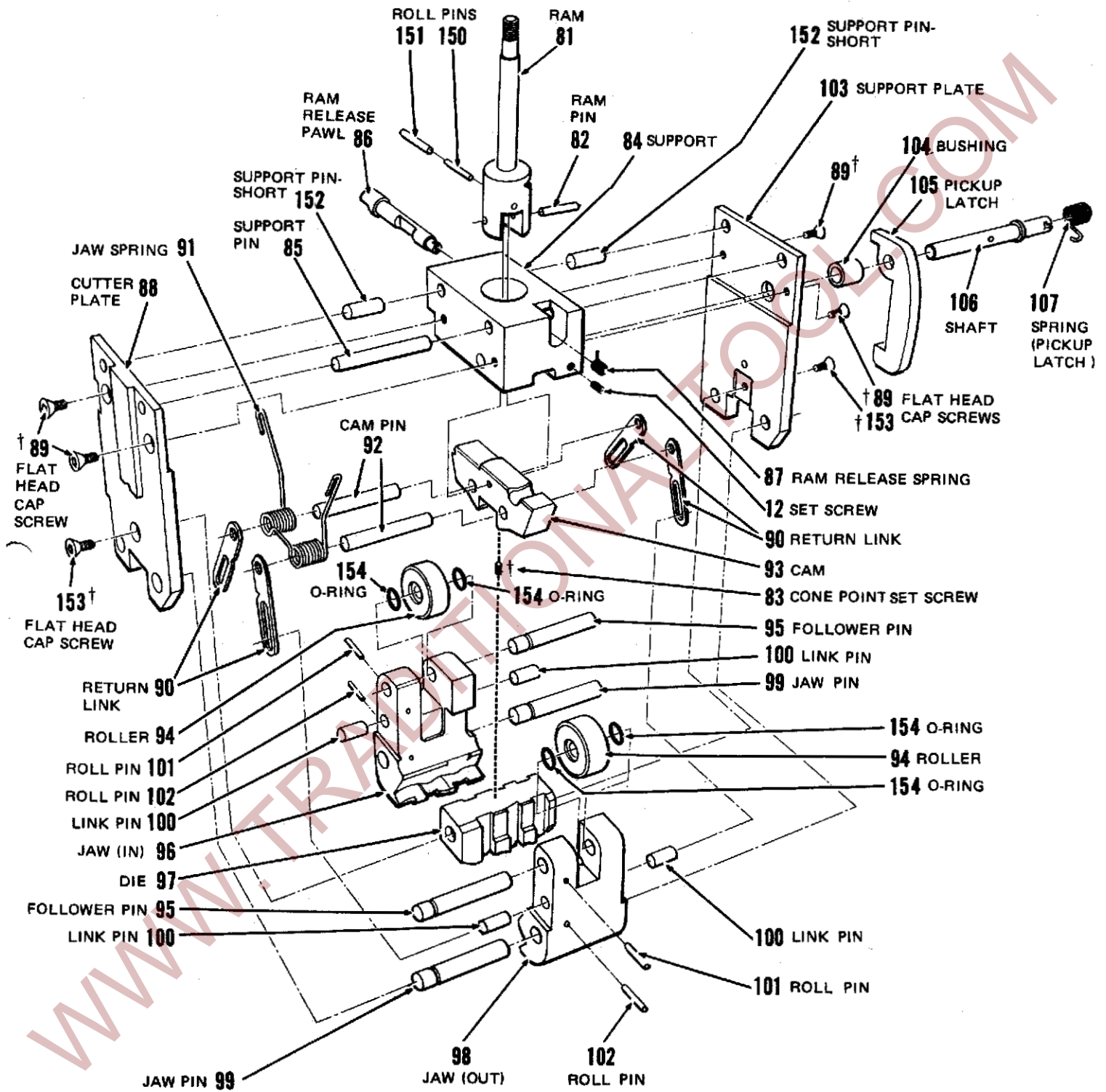
JAW SPRING ASSEMBLY



JAW SPRING WRAPPED ON CAM PINS (92) BEFORE ASSEMBLING JAWS. (90° WRAP)



SEALER MECHANISM WITH CUTTER PLATE (88) REMOVED, SHOWING ASSEMBLED POSITION OF JAW SPRING (91). (APPROXIMATELY 270° WRAP)



† Apply one drop of "Loctite #242" Sealant to cleaned parts. Allow 12 hours to set if possible. Do not apply to small screws or close to moving parts as the liquid spreads easily.

TROUBLESHOOTING

The following checklist is recommended to prevent unnecessary delays and customer costs incurred when sending a tool back for repairs. Prior to proceeding with the following recommendations,

make certain that the tool has been cleaned thoroughly and lubricated with light machine oil. Check that all cap screws are tight and that all moving parts are free.

TENSIONING

SYMPTOM	CAUSE	REMEDY
Motor will not start when tensioning lever is depressed.	No air reaching tool.	<ol style="list-style-type: none"> 1. Check gauge on filter-regulator-lubricator (FRL) for proper 75-90 p.s.i.g. pressure setting. 2. Check air line from FRL to tool for blockage.
	Air motor filter screen is blocked with rust or dirt (12) (page 37).	Check air motor filter screen for obstruction, then clean, or replace as required.
	Air motor is dry. Oil has evaporated leaving sticky varnish which prevents motor vanes from extending.	Add a teaspoon of air line oil directly into motor at elbow. Reconnect air line and test. Tap motor lightly with rubber mallet to free vanes. Check function of lubricator.
Air motor runs slowly or sluggishly.	Air supply to tool is restricted.	<ol style="list-style-type: none"> 1. Check gauge on FRL for proper 75-90 p.s.i.g. setting. 2. Check air line from FRL for blockage. 3. Check for satisfactory air volume reaching tool by either method following: <ol style="list-style-type: none"> a) Install an in-line air guage at the tool; if one is available. Hook up air and record pressure reading. With no strap in tool, depress tension lever and record gauge reading. If pressure drops more than 15 p.s.i., air supply is inadequate. Remedy is to improve air flow by shortening length of line from FRL to tool, increasing size of air lines, or checking for obstructions to or from FRL unit. Example: If piping system equipped with shutoff valves, ensure valves are fully open. b) If no in-line guage available, repeat step "a" (above) except use gauge on FRL unit.
	Air motor filter screen is blocked with rust or dirt.	Check air motor filter screen for obstruction then clean or replace as required.
	Air motor is dry (unlubricated) causing motor to run slowly.	Add a teaspoon of air line oil directly into motor at elbow. Place rag around motor, reconnect air and test. If motor speed increases, motor was dry. Check lubricator for proper adjustment, quantity and type of oil.
	Valve latch (2) has popped up.	Check by depressing tension lever fully and then releasing lever. Listen to motor noise. Depress tension lever and hold lever fully in. If motor speed increases, valve latch is popped up, correct by first loosening set screw (37). Remove excess looseness by tightening screw (1) and lock with set screw (37).
	Strap in use is insufficiently lubricated.	Use lubricated strapping.

TENSIONING CONTINUED

SYMPTOM	CAUSE	REMEDY
Air Motor runs slowly or sluggishly .	Air hose is broken or restricted.	Check hose and replace if necessary. Air hose, P-008558 may be purchased. Also check to ensure that hose length is 10 feet or less.
Inadequate tension.	Air pressure or air motor not adjusted properly.	<ol style="list-style-type: none"> 1. Increase air pressure but make sure it is still within the recommended range. 2. Adjust motor to produce more tension by loosening lock screw on motor, and then turning adjusting screw in (clockwise). Tighten lock screw after making adjustment (See Adjustments on page 12).
Feedwheel slips on top strap during tensioning.	Feedwheel teeth packed with dirt or grit.	Clean feedwheel (113) teeth with wire brush.
	Feedwheel teeth worn or chipped.	Replace feedwheel (113).
	Bushing in side plate worn.	Check I.D. of bushing (112) to determine if hole is elongated. Replace if visually elongated.
	Strap not aligned properly - outer link coming down on strap.	Align straps in tool properly. If a strap is under the outer link (111) the feedwheel is prevented from energizing. Be sure that top strap is captured by slot in front strap guide (114) at the beginning of tensioning.
Bottom strap slips out of tool during tensioning.	Clutch plug (117) packed with dirt or grit	Clean clutch plug (117) with wire brush.
	Clutch plug teeth worn or chipped.	Replace clutch plug (117).
Feedwheel will not drop onto strap when tensioning lever is depressed.	Energizing piston (47) binding.	Check that piston is working freely by raising and lowering with tension lever (10). Check and oil linkage and pins.
Feedwheel will not lift off strap after cycle is completed.	Motor pickup latch (105) is worn. Outer link (111) worn.	<p>Check wing of motor pickup latch, that contacts outer link, for wear. Replace if severely worn.</p> <p>Replace outer link.</p>
	Motor is dry, preventing motor from "backing up" and causing feedwheel teeth to remain imbedded in strap.	<p>Add a teaspoon of air line oil directly into motor at elbow. Reconnect air line and test as follows:</p> <ol style="list-style-type: none"> 1. Load tool with strap. 2. Depress tension lever and allow to tension until motor stalls. 3. Press latch (2). Tool must release tension by feedwheel rolling back. If tool does not release tension, problem exists in motor or gear housing gearing.

TROUBLESHOOTING CONTINUED


TENSIONING CONTINUED

SYMPTOM	CAUSE	REMEDY
Tool breaks strap at feedwheel, clutch plug, corner of load, or at joint during tool removal or tensioning.	Excessive applied tension.	1. Reduce air pressure but make sure it is still within the recommended range. 2. Adjust motor to produce less tension by loosening lock screw on motor, and then turning adjusting screw out (counterclockwise). Tighten lock screw after making adjustment (See Adjustments on page 12).
	Strap in use is insufficiently lubricated.	Use lubricated strapping.

SEALING

SYMPTOM	CAUSE	REMEDY
Joints failing after tool removed.	Low joint strength caused by chipped or worn sealer mechanism parts.	Examine sealer mechanism for chipped or worn jaws and die. Replace as required, noting that jaws are marked in and out and note die direction. Check for worn pins or bearings in linkage.
	Application related; i.e., strap not strong enough to contain load; load subjected to impact; load expands after strapping or load has very sharp corner.	Review application to determine that strap and tool in use is adequate for application.
Tool won't complete sealing cycle unless sealing lever is held down manually.	Broken sure seal pawl spring (41).	Replace sure seal pawl spring.
	Sure seal pawl (42) worn.	Replace sure seal pawl.
	Sealer valve stem (24) worn.	Replace sealer valve stem.
Sealing mechanism stalls in "down" position.	Strap not aligned properly.	Return jaws to the "up" position by inserting screw driver in slot in sure seal pawl and rotate clockwise. CAUTION Stand to side of and hold tool securely when rotating pawl on jammed tool. Remove damaged strap and retension with proper strap alignment.
	Insufficient air pressure to complete sealing.	Increase air pressure until sealing is completed. CAUTION Air pressure must be maintained in the 75-90 p.s.i.g. range.

SEALING CONTINUED

SYMPTOM	CAUSE	REMEDY
Sealer mechanism stalls in down position - continued -	Broken sealer mechanism part.	Carefully inspect sealer mechanism for worn or broken parts. Jaws can be returned to the "up" position by inserting screw driver in slot in sure seal pawl and rotating clockwise. <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>CAUTION Stand to side of and hold tool securely when rotating pawl on jammed tool.</p> </div> </div>
	Improper roller lubrication.	Thoroughly clean cam rollers and cam roller pins and lubricate using Dow Corning Molykote G-n paste or equivalent.

STRAP CUTOFF

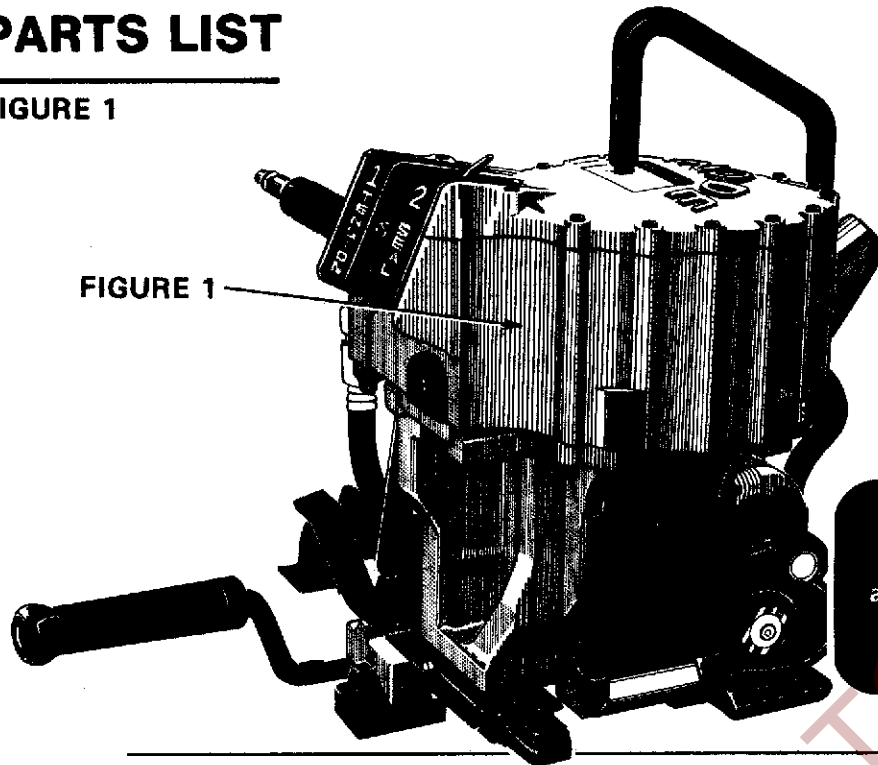
SYMPTOM	CAUSE	REMEDY
Tool will not cut off strap after punching.	Cutter plate out of adjustment.	Adjust cutter (See Adjustments on page 13).
	Cutter plate worn.	Replace cutter plate (88).
	"Cutting leg" on cutter block worn or broken.	Replace cutter block (75).

BOTTOM STRAP SLIPPAGE

SYMPTOM	CAUSE	REMEDY
Bottom strap slips during loading of tool.	Tool not loaded correctly.	Check that bottom strap is extended slightly beyond front strap guide (144) at front of tool.
	Gripper lever assembly (73) of strap gripper (79) are binding.	Check. Lubricate and free if necessary.
	Strap gripper (79) teeth are worn.	Check and replace strap gripper.

PARTS LIST

FIGURE 1



When ordering parts please show tool model, part number and name.

Hardware sizes listed may be obtained at local hardware suppliers.

All recommended spare parts are underlined and should be stocked.

! WARNING
 All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect the tool's operation and present a safety hazard.

KEY	DESCRIPTION	QTY	SHP-34	SHP-100	SHP-114
1	Shoulder screw (special)	1	023670	023670	023670
2	Latch	1	<u>270925</u>	<u>270925</u>	<u>270925</u>
3	Valve latch spring	1	<u>020654</u>	<u>020654</u>	<u>020654</u>
4	Flat head socket cap screw #10-24x3/4	1	008757	008757	008757
5	Socket head cap screw 1/4-20 x 1	2	009042	009042	009042
6	Socket head cap screw 1/4-20 x 3/4	22	009041	009041	009041
7	Cover	1	267163	267163	267163
8	Warning sign	1	267511	267511	267511
9	Valve lever pin	1	020671	020671	020671
10	Lever	1	023696	023696	023696
11	Notched lever	1	023697	023697	023697
12	Set screw 1/4 - 28 x 1/4	2	003465	003465	003465
13	Cylinder gasket	1	267162	267162	267162
14	Flexloc nut 3/8 - 24	1	003868	003868	003868
15	O-ring SAE #442	1	268966	268966	268966
16	Piston	1	267167	267167	267167
17	Valve sleeve	1	023666	023666	023666
18	O ring SAE #013	7	020699	020699	020699
19	Valve stem	1	023665	023665	023665
20	O ring SAE #009	5	020701	020701	020701
21	Valve spring	1	020665	020665	020665
22	Valve sleeve	1	270924	270924	270924
23	Valve sleeve	1	020657	020657	020657
24	Valve stem	1	270923	270923	270923
25	Spring	1	023663	023663	020663
26	Valve sleeve	1	023659	023659	023659
27	Cylinder	1	267164	267164	267164
28	Grip	1	023669	023669	023669
29	Hand rest	1	023674	023674	023674
32	Elbow	1	020710	020710	020710
34	Air hose assembly	1	023653	023653	023653
35	Upper muffler assembly	1	262209	262209	262209
36	Washer 1/4 SAE	1	092757	092757	092757
37	Set screw, cup point 1/4-28x7/8	1	268967	268967	268967
38	Flexloc nut, thin 1/4-28	1	004526	004526	004526
39	Flat head cap screw 10-24 x 3/8	2	023705	023705	023705
40	Cover plate	1	023662	023662	023662
41	Spring	1	023675	023675	023675
42	Pawl	1	023660	023660	023660
43	O ring SAE #114	1	006594	006594	006594
149	Tag	1	008798	008798	008798

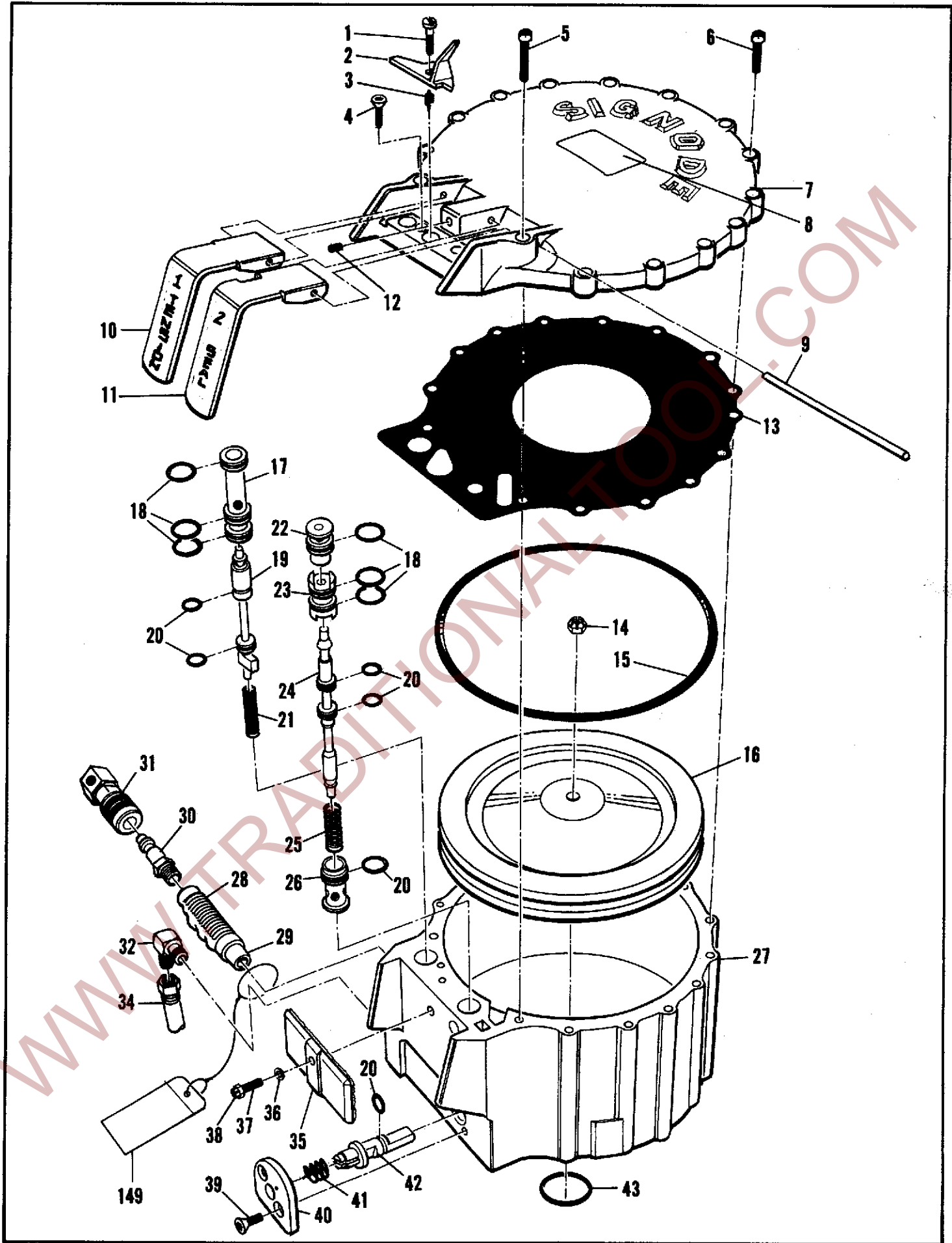
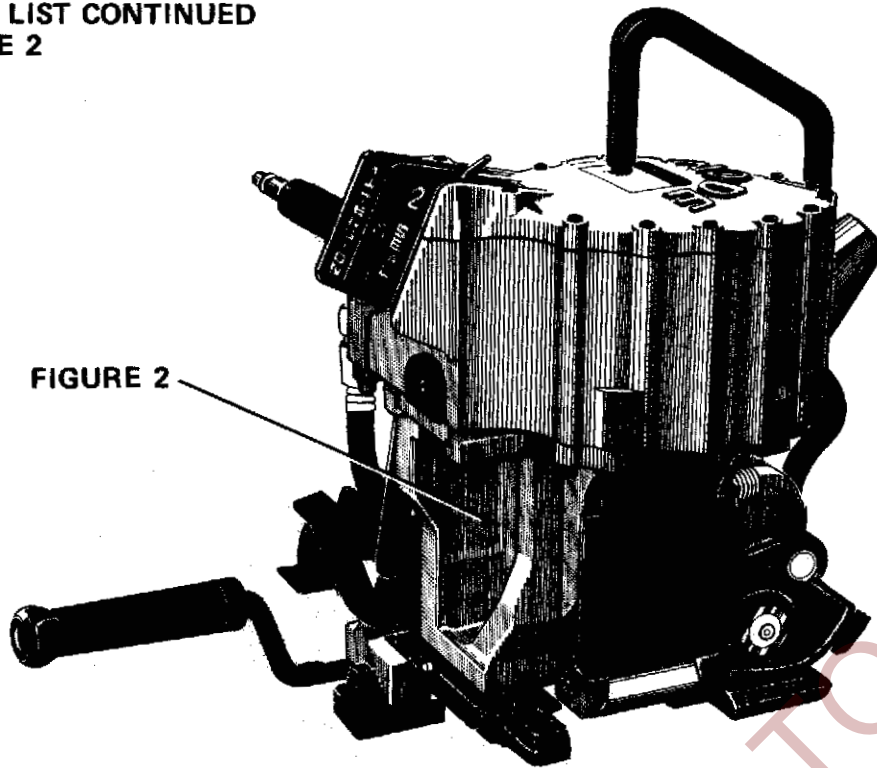


FIGURE 1

PARTS LIST CONTINUED
FIGURE 2

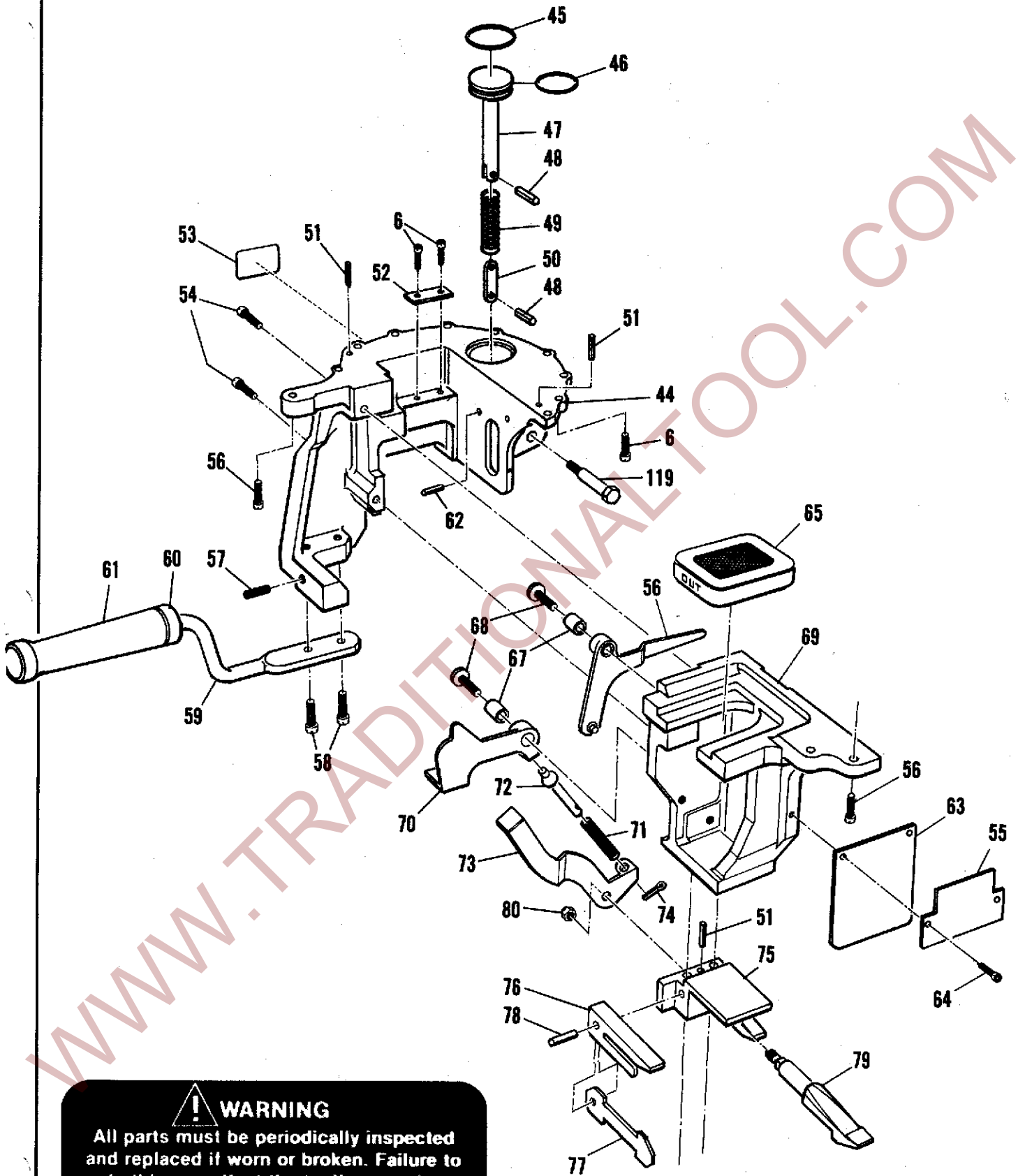


When ordering parts please show tool model, part number and name.

Hardware sizes listed may be obtained at local hardware suppliers.

All recommended spare parts are underlined and should be stocked.

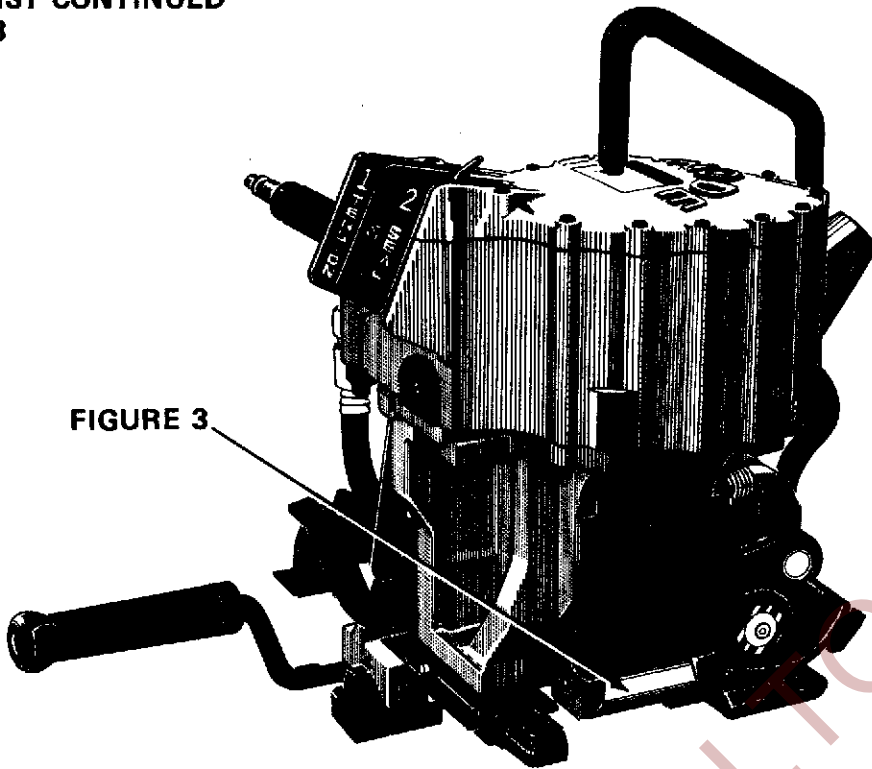
KEY	DESCRIPTION	QTY	SHP-34	SHP-100	SHP-114
6	Socket head cap screw 1/4-20 x 1	22	009041	009041	009041
44	Sealer frame	1	267165	267165	267165
45	O ring SAE #130	1	023726	023726	023726
46	O ring SAE #219	1	023713	023713	023713
47	Piston assembly	1	023649	023649	023649
48	Spirol pin 5/32 dia. x 11/16	2	023721	023721	023721
49	Spring	1	023658	023658	023658
50	Link	1	023648	023648	023648
51	Dowel pin 3/16 dia. x 1	3	012582	012582	012582
52	Support stop pad	1	266342	266342	266342
53	Name plate	1	268974	268972	268968
54	Socket head cap screw 5/16-18 x 1 1/2	2	013626	013626	013626
55	Guard support	1	270891	270891	270891
56	Socket head cap screw 1/4-20 x 7/8	3	007828	007828	007828
57	Set screw 5/16 - 18 x 5/8	1	023710	023710	023710
58	Socket head cap screw 5/16-18 x 3/4	4	003914	003914	003914
59	Handle	1	268506	268506	268506
60	Ferrule	1	002166	002166	002166
61	Handle grip	1	003146	003146	003146
62	Roll pin 3/16 dia. x 1 1/8	3	009074	009074	009074
63	Guard	1	270854	270854	270854
64	Socket head cap screw 10-24 x 3/8	6	004916	004916	004916
65	Lower muffler assembly	1	268970	268970	268970
66	Reset link	1	267893	267893	267893
67	Grip release bushing	2	015709	015709	015709
68	Button head cap screw 5/16 - 18 x 1	2	016688	016688	016688
69	Support guide	1	266338	266338	266338
70	Grip release assembly	1	015708	015708	015708
71	Push rod spring	1	006741	006741	006741
72	Spring spacer	1	015734	015734	015734
73	Gripper lever	1	015735	015735	015735
74	Cotter pin 3/32 dia. x 1/2	1	001621	001621	001621
75	Cutter block	1	168451	168451	168451
76	Rear strap guide (fixed)	1	<u>023621</u>	<u>023621</u>	<u>023621</u>
77	Rear strap guide (movable)	1	<u>270926</u>	<u>270927</u>	<u>270928</u>
78	Pin strap guide	1	<u>023725</u>	<u>023725</u>	<u>023725</u>
79	Strap gripper	1	<u>270933</u>	<u>270934</u>	<u>270935</u>
80	Flexloc nut 5/16 - 18 thin	2	005211	005211	005211
119	Shoulder screw 3/8 dia. x 1	1	023708	023708	023708



! WARNING
 All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect the tool's operation and present a safety hazard.

FIGURE 2

PARTS LIST CONTINUED
FIGURE 3

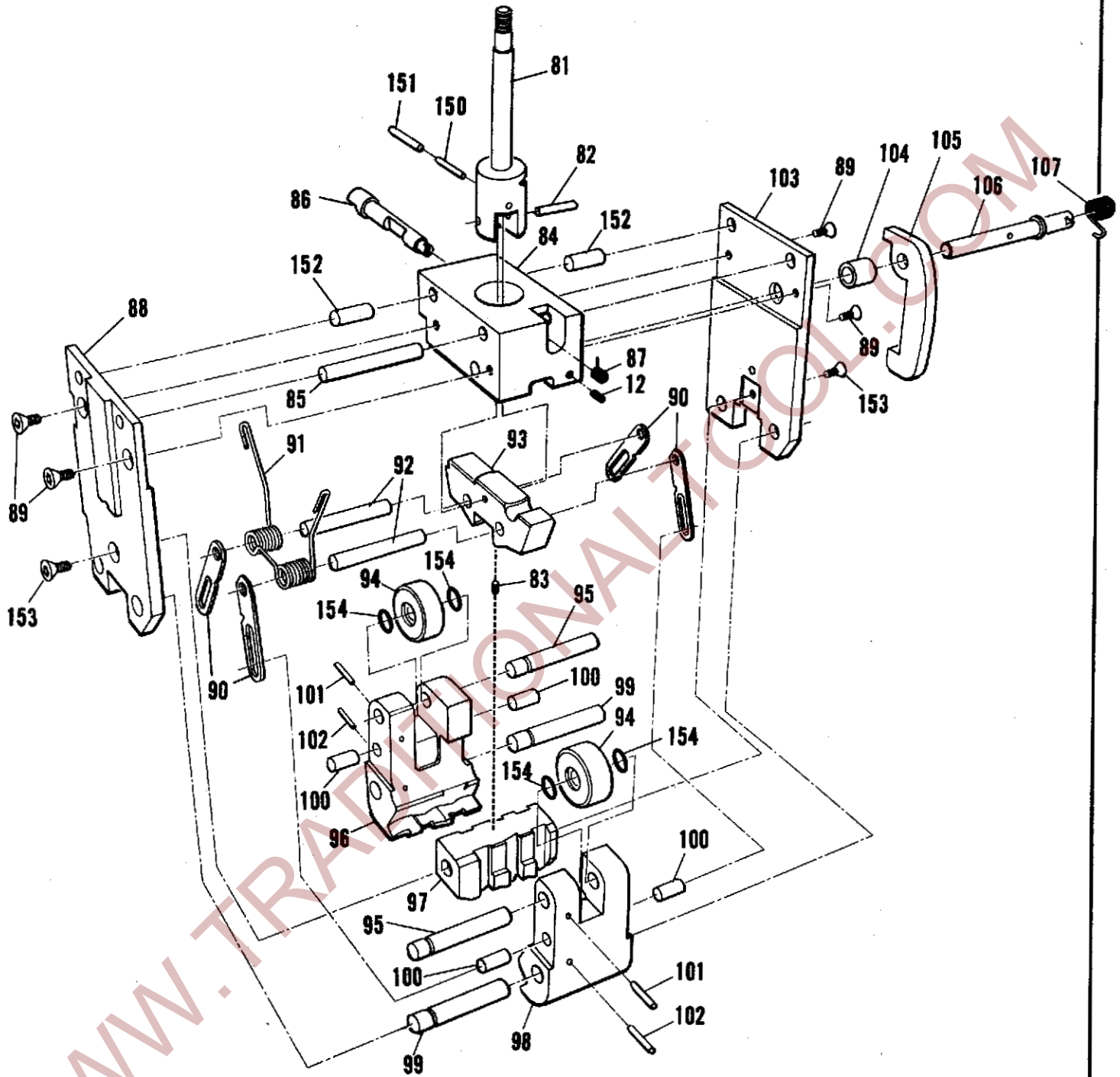


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Hardware sizes listed may be obtained at local hardware suppliers.

All recommended spare parts are underlined and should be stocked.

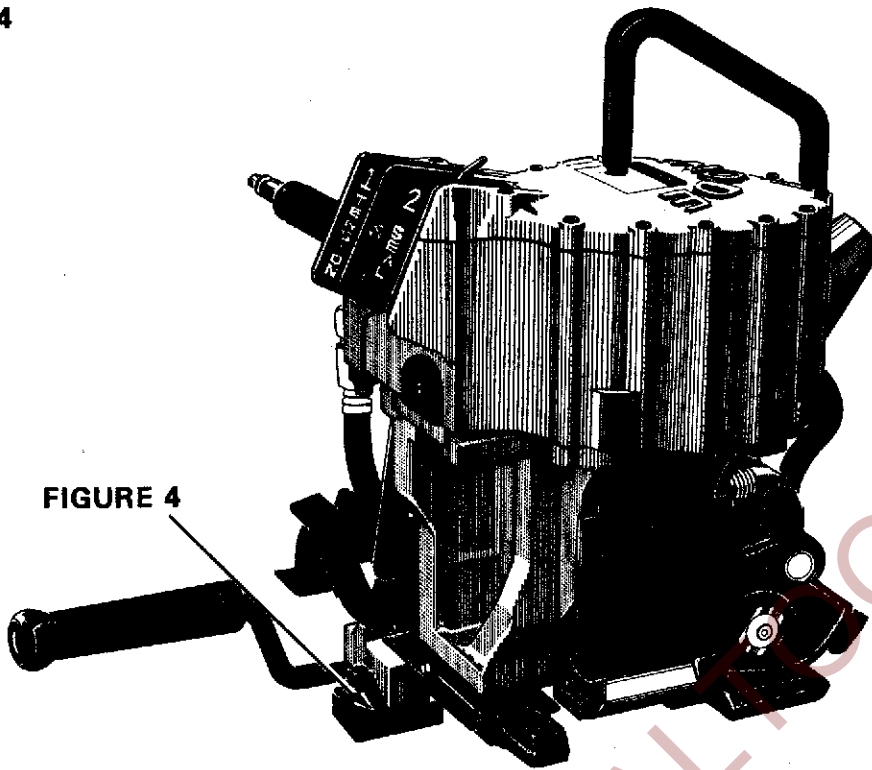
KEY	DESCRIPTION	QTY	SHP-34	SHP-100	SHP-114
12	Set screw 1/4-28 x 1/4	2	003465	003465	003465
81	Ram	1	266329	266329	266329
82	Ram pin	1	270852	270852	270852
83	Set screw, cone pt #10-24 x 3/8	1	270853	270853	270853
84	Support	1	266313	266313	266313
85	Support pin	1	266303	266303	266303
86	Ram release pawl	1	265768	265768	265768
87	Ram release spring	1	265770	265770	265770
88	<u>Cutter plate</u>	1	<u>266325</u>	<u>266320</u>	<u>266315</u>
89	Flat head cap screw 5/16-18 x 1	4	008154	008154	008154
90	Return link	4	266308	266308	266308
91	Jaw spring	1	268502	268502	268502
92	Cam pin	2	266304	266304	266304
93	Cam	1	266326	266318	266311
94	Roller	2	265769	265769	265769
95	Follower pin	2	266302	266302	266302
96	<u>Inner jaw</u>	1	<u>268511</u>	<u>268837</u>	<u>266317</u>
97	<u>Die</u>	1	<u>267868</u>	<u>266321</u>	<u>266312</u>
98	<u>Outer jaw</u>	1	<u>268509</u>	<u>268836</u>	<u>266316</u>
99	<u>Jaw pin</u>	2	<u>266310</u>	<u>266310</u>	<u>266310</u>
100	Link pin	4	266307	266307	266307
101	Roll pin 1/8 dia. x 11/16	2	005849	005849	005849
102	Roll pin 1/8 dia. x 7/8	2	004958	004958	004958
103	Support plate	1	266324	266319	266314
104	Bushing	1	266339	266339	266339
105	Pickup latch	1	023643	023643	023643
106	Shaft	1	266340	266340	266340
107	Spring	1	023642	023642	023642
150	Roll pin 1/4 dia. x 2	1	005152	005152	005152
151	Roll pin 5/32 dia. x 2	1	028160	028160	028160
152	Support pin - short	2	270610	270610	270610
153	Flat head socket cap screw 5/16 - 18 x 3/4	2	008153	008153	008153
154	O-Ring SAE #12	4	023446	023446	023446



! WARNING
 All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect the tool's operation and present a safety hazard.

FIGURE 3

**PARTS LIST CONTINUED
FIGURE 4**



When ordering parts please show tool model, part number and name.

Hardware sizes listed may be obtained at local hardware suppliers.

All recommended spare parts are underlined and should be stocked.

KEY	DESCRIPTION	QTY	SHP-34	SHP-100	SHP-114
34	Air hose assembly	1	023653	023653	023653
48	Spiral pin 5/32-21 x 11/16 dia.	2	023721	023721	023721
50	Link	1	023648	023648	023648
58	Socket head cap screw 5/16-18 x 3/4	4	003914	003914	003914
62	Roll pin 3/16 dia. x 1 1/8	3	009074	009074	009074
80	Flexloc nut 5/16-18 thin	2	005211	005211	005211
108	Base	1	266309	266345	266346
109	Rivet	1	023709	023709	023709
110	Strap guide spring	1	023654	023654	023654
111	Outer link	1	023702	251569	023647
112	Bushing	1	008805	008805	008805
113	<u>Feed wheel</u>	1	<u>023610</u>	<u>023610</u>	<u>023610</u>
114	Front strap guide	1	268505	268504	268068
116	Hanger	1	266349	266349	266349
117	<u>Clutch plug assembly</u>	1	<u>023672</u>	<u>023672</u>	<u>023672</u>
118	<u>Roll pin 3/16 dia x 1/2 long</u>	1	<u>005768</u>	<u>005768</u>	<u>005768</u>
119	Shoulder screw 3/8 dia. x 1	1	023708	023708	023708
120	Pin	1	023625	023625	023625
121	Pivot pin bushing	1	023760	023760	023760
122	Roll pin 3/16 dia. x 1 3/8	1	176089	176089	176089
123	Air motor	1	023500	023500	023500
124	Deflector assembly	1	161171	161171	161171
148	Spirol pin 7/64 dia. x 1 1/8	1	187786	187786	187786
155	Socket head cap screw 5/16-18 x 1 3/4	2	008152	008152	008152

! WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect the tool's operation and present a safety hazard.

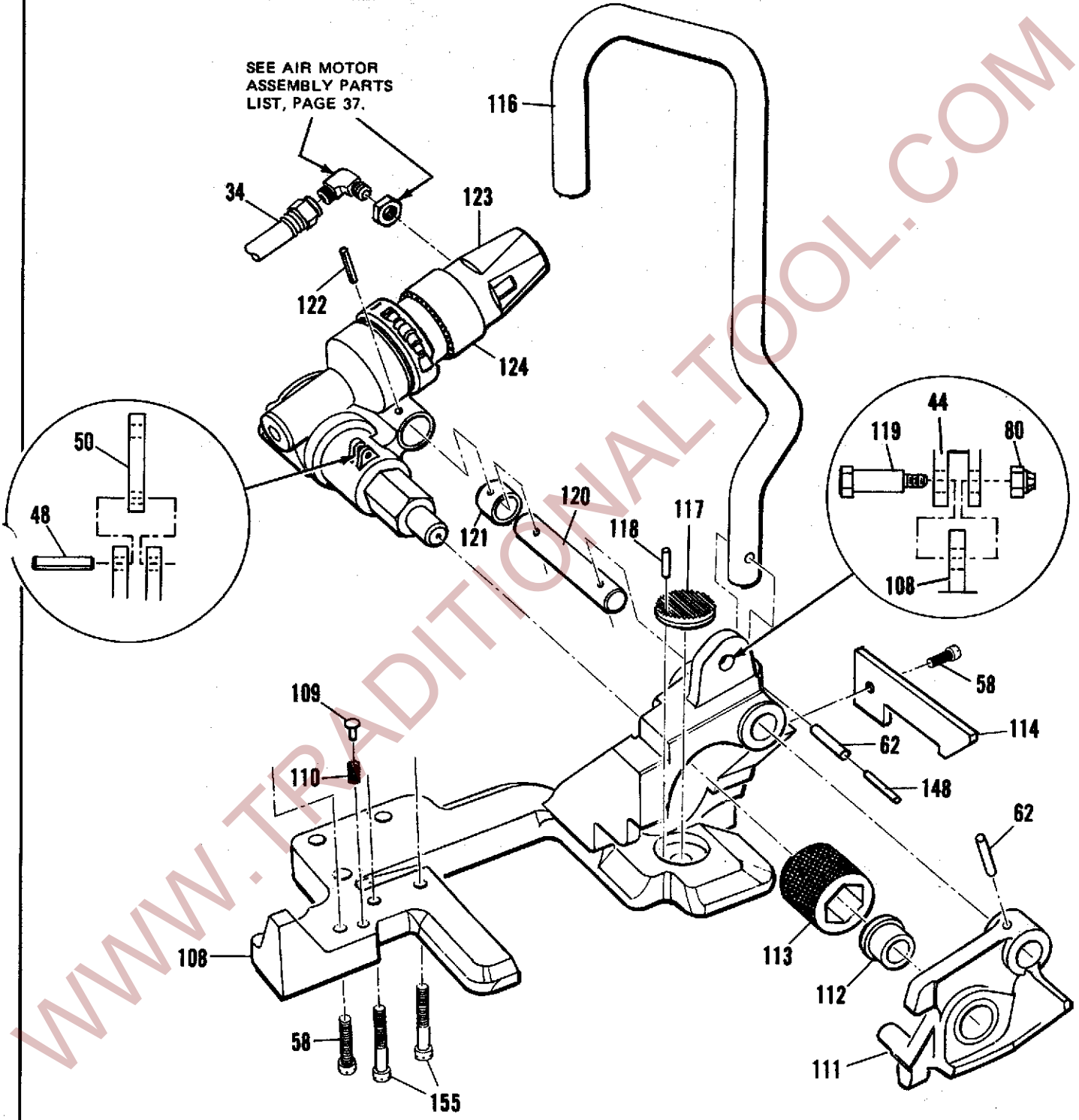


FIGURE 4

PARTS LIST CONTINUED
 FIGURE 5
**GEAR HOUSING
 ASSEMBLY**

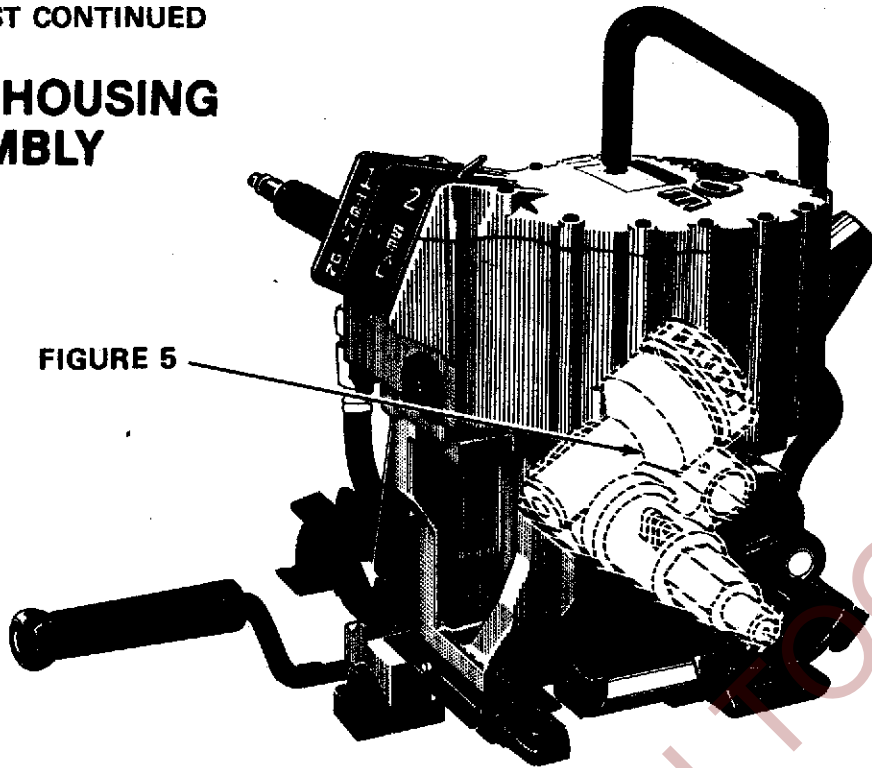


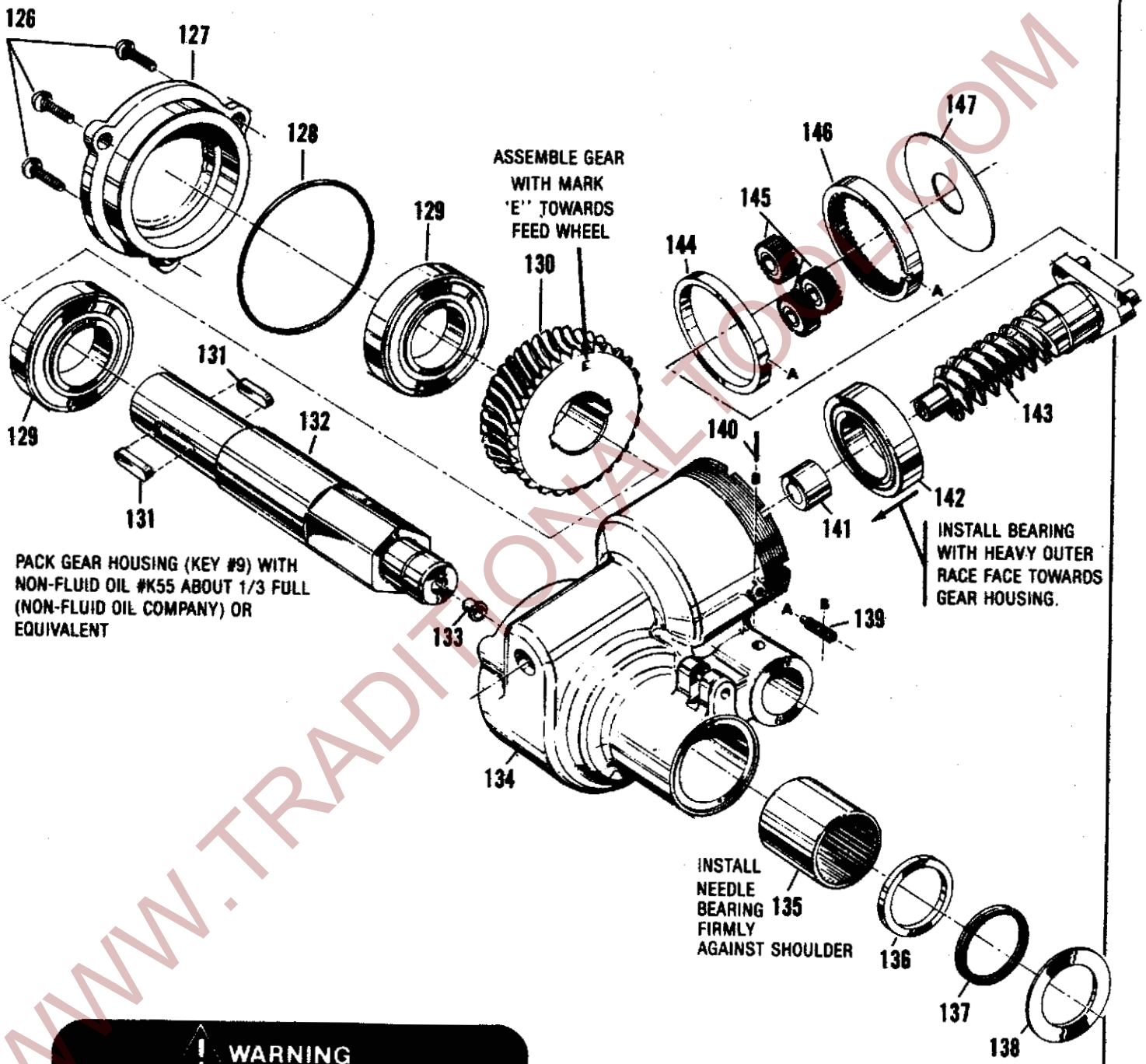
FIGURE 5

When ordering parts please show tool model, part number and name.

Hardware sizes listed may be obtained at local hardware suppliers.

All recommended spare parts are underlined and should be stocked.

KEY	DESCRIPTION	QTY	SHP-34	SHP-100	SHP-114
126	Button head cap screw 1/4-20 x 5/8	3	023707	023707	023707
127	Housing cover	1	023628	023628	023628
128	O ring SAE #141	1	007027	007027	007027
129	Ball bearing, Fafnir KP16A	2	007031	007031	007031
130	<u>Worm wheel</u>	1	<u>023748</u>	<u>023748</u>	<u>023748</u>
131	Key	2	007023	007023	007023
132	Feed wheel shaft	1	023615	023615	023615
133	Alemite fitting #1853	1	008844	008844	008844
134	Gear housing	1	023749	023749	023749
135	Needle bearing, Torr. B-1816	1	008843	008843	008843
136	Washer (special)	1	023623	023623	023623
137	Quad ring SAE #217	1	023715	023715	023715
138	Stepped washer	1	023624	023624	023624
139	Lock screw	1	008581	008581	008581
140	Roll pin 5/64 dia. x 7/16	1	008582	008582	008582
141	Needle bearing Torr. M-781	1	008751	008751	008751
142	Ball bearing, N. D. QH0L05	1	023754	023754	023754
143	Worm assembly	1	023747	023747	023747
144	Spacer ring	1	008534	008534	008534
145	<u>Idler gear assembly</u>	3	<u>008815</u>	<u>008815</u>	<u>008815</u>
146	Ring gear	1	008524	008524	008524
147	Washer (special)	1	008536	008536	008536



! WARNING
 All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect the tool's operation and present a safety hazard.

FIGURE 5

PARTS LIST CONTINUED
FIGURE 6

**MODEL 85 R15
AIR MOTOR**

Part No. 023500

When ordering parts
please show tool model,
part number and name.

Hardware sizes listed
may be obtained at local
hardware suppliers.

All recommended spare
parts are underlined
and should be stocked.

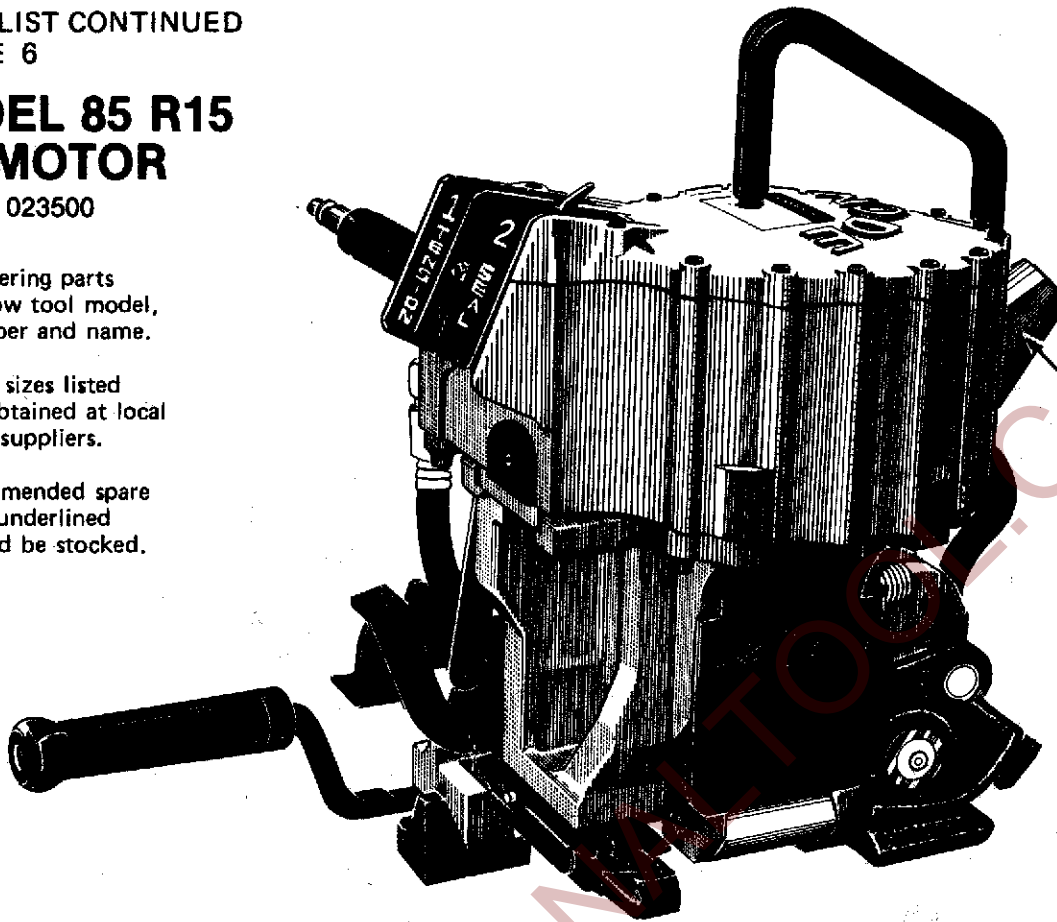


FIGURE 6

KEY	DESCRIPTION	QTY.	PART NO.	KEY	DESCRIPTION	QTY.	PART NO.
1	Pressure Adjusting Screw	1	023512	20	Vane	5	024651
2	Regulator Spring	1	020166	21	Front End Plate	1	023514
3	<u>Slip Ring</u>	2	023543	22	Align Pin	1	023510
4	Diaphragm Nut	1	023511	23	Ball Bearing Fafnir #8533	1	023521
5	<u>Pressure Regulator Diaphragm Ass'y</u>	1	023570	24	Pin 3/16 x 3/4 Torr#Q8320 (Spherical Ends)	2	023518
6	Valve Seat	1	023537	25	Gear Case	1	023503
7	Pressure Regulator Valve	1	023572	26	<u>Idler Assembly</u>	2	023516
8	Valve Spring	1	023536	27	Thrust Spacer	1	023506
9	Motor Housing	1	023501	28	Ring Gear	1	023504
10	Lock Plug	1	023540	29	Retaining Ring "Spirolox" RS 106	1	023532
11	Soc. Set Screw 10-24x3/16 Fl. Pt	1	020173	30	Cap Screw	1	008731
12	Filter	1	024630	31	Ring Nut	1	023534
13	Tru-Seal Miller 1/4-18 N.P.T.	1	023087	32	Ball Bearing, Fafnir #8541	1	023520
14	90° Elbow, 1/4 Tube x 1/4-18 N.P.S.	1	023524	33	Roll Pin 1/16 x 1/2	1	012543
16	<u>Ball Bearing Fafnir #ASIK7 SRI #2</u>	2	024633	34	Seal	1	023519
17	<u>Back End Plate</u>	1	023515	35	Gear Housing	1	023502
18	Cylinder	1	023507	36	Pin 7/64 x 1/4 "Drive-Lok" Type A3	1	023533
19	<u>Rotor</u>	1	023513				