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- Pneumatic Sealless Tools
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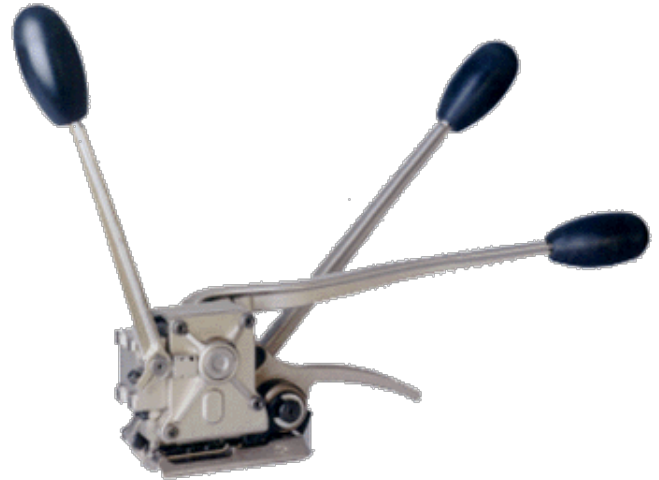
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## ZL90 OPERATION MANUAL



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### SAFETY INSTRUCTIONS

Please read these instructions carefully. Failure to follow these instructions could result in severe injury.

1. Before using the tool, read the entire operation manual thoroughly.
2. Always wear safety glasses and face protection when operating the tool.
3. Always wear protective gloves when handling strapping.
4. Always use only  replacement parts from an authorized dealer.

These tools are designed for use with high tensile strapping and all parts are manufactured or treated for these extreme conditions. Performance of your tool will be affected if any other parts are used, which may cause injury.

### SPECIFICATIONS

Weight:	13.4 lbs. (6.0 kg)
Base Length:	4.9" (125 mm)
Base Width:	2.8" (70 mm)
Height:	4.4" (110 mm)

### Strapping Qualities:

Designed for use with regular duty strapping (107,000 psi / 750 N / mm<sup>2</sup>) to high tensile strapping (156,000 psi / 1100 N / mm<sup>2</sup>).

Model Number	Strap Width	Strap Thickness
ZL90-1	1 1/4" (32mm)	.025"-.031" (0.635 mm - 0.80 mm)

This tool is **not** designed to be used with strapping below .025" (0.635 mm) thickness or above .031" (0.80mm) thickness.

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### OPERATING INSTRUCTIONS

#### A

Place strapping tightly around the package and hold in place with left hand.

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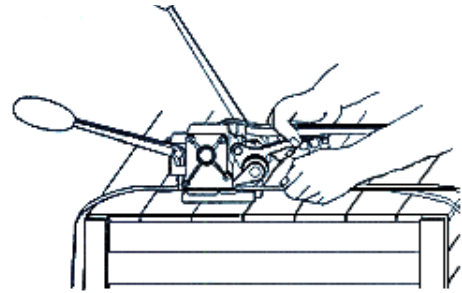
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Make sure lever ZL is in fully open position as shown in diagram.

Take tool with right hand and pull the feedwheel lever towards the sealing lever.

Insert both portions of the strap with left hand into the sealing section.

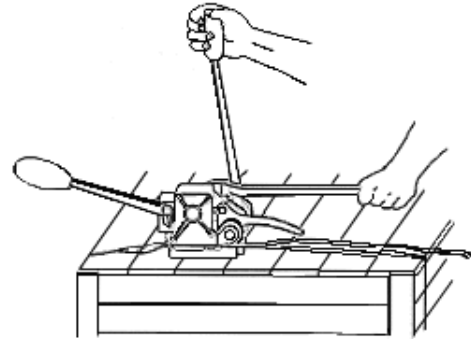
Release the feedwheel lever and make certain strapping is held by strap guide.



### **B**

Hold tool firmly with left hand on the sealing lever.

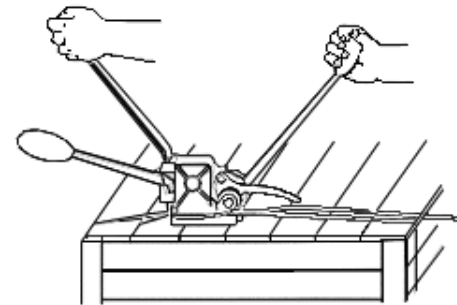
With right hand move the tension lever forward and backward until the desired tension is obtained.



### **C**

Place right hand firmly on the tension lever for supporting the tool.

With left hand push the sealing lever forward until it reaches the stop.

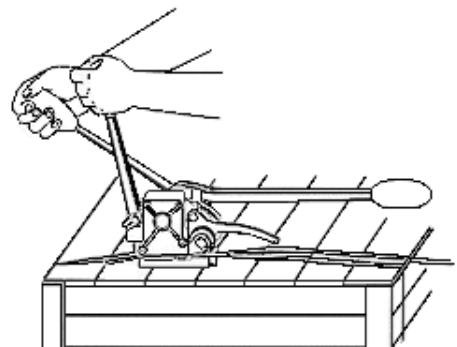


### **D**

Move the sealing lever back to its original position.

Place right hand firmly on the tension lever for supporting the tool.

With left hand pull lever ZL towards you until it reaches the stop.



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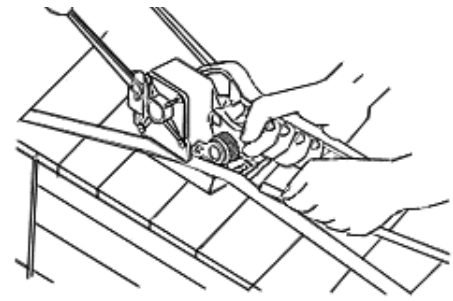
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**E**

Move lever ZL back to fully open position as shown in diagram.

To release the tool, with right hand pull the feedwheel lever towards the sealing lever, pushing the lever to the left away from the sealing section.



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**MAINTENANCE**

Clean the sealing section regularly with compressed air to remove any dust and particles. Lubricate the die (position 18), punch (position 36) and punch ZL (position 31) daily with a thin grade of oil.

This will reduce friction and extend the life of the tool as well as the parts.

Spray the entire tool daily with a rust preventative, this will prevent any rust formation.

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**ADJUSTMENTS****TO ADJUST SEALING DEPTH**

Loosen nut (position 42), adjust hexagon socket set screw (position 59) with a hexagon key, turn counter clockwise to increase sealing depth, or turn clockwise to decrease sealing depth, retighten nut.

**TO ADJUST CLEARANCE BETWEEN THE FEEDWHEEL (POSITION 5) AND GRIPPER (POSITION 37)**

The clearance between the feedwheel and the gripper should be .020" (.51 mm). If the clearance is more or less than this, it must be adjusted.

**To reduce the clearance:** loosen nut (position 42A), turn hexagon socket set screw (position 41) counter clockwise with a ball hexagon key, retighten nut.


**To increase the clearance:** loosen nut (position 42A), turn hexagon socket set screw (position 41) clockwise with a ball hexagon key, retighten nut.

**TO ADJUST SEALING DEPTH FOR LEVER ZL (POSITION 25)**

Loosen nut (position 27), adjust hexagon socket screw (position 26) with a hexagon key, turn counter clockwise to increase sealing depth, or turn clockwise to decrease sealing depth, retighten nut.

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**REPLACEMENT OF PARTS**

Note: If you are not familiar with the following replacement procedures, please contact your authorized  dealer for a demonstration or for service.

**To Replace The Feedwheel (Position 5)**

1. Remove external retaining ring (position 3).
2. Remove tensioning assembly (consisting of tension lever (position 11) and feedwheel shaft (position 2)).
3. Install new feedwheel with the "O" marking facing the strap guide (position 4), reinstall tensioning assembly observing the key way position during assembly.
4. Reposition strap guide onto the protruding feedwheel shaft.
5. Reinstall external retaining ring.

**To Replace The Gripper (Position 37)**

Note: The gripper is held in a nonadjustable position with spring tension pin (position 38).

1. To remove gripper, use drift pin matching the dimension of the spring tension pin (position 38) and drive the spring tension pin into the tool base, until the gripper comes loose from its position.
2. Lift feedwheel lever (position 7) to access gripper.
3. Clean cavity area and add one drop of a thin grade of oil in the cavity.
4. To install new gripper, place the gripper into the cavity of the tool base. Reinstall the spring tension pin and drive it into the hole of the tool base, until it is flush with the tool base.

#### **To Replace The Knife (Position 19)**

1. Remove housing cover ZL (position 66), by removing 4 hexagon socket shoulder screws (position 64)
2. With pliers, pull knife from slot on die and knife block (position 15).
3. Install new knife observing spring tension pin (position 20) aligns with same slot on die and knife block.
4. Make certain that the area is clean and well greased with white grease.
- 5 **Important: Make certain that the roller (position 78) is in its position.**
6. Reinstall housing cover ZL, then reinstall hexagon socket shoulder screws with a drop of Loctite\* No. 222 on the thread of each screw.

#### **To Replace The Punch (Position 36)**

1. Remove 2 cheese head machine screws (position 63) located on the underside of the housing (position 58).
2. Remove punch, clean area, replace with new punch, then reinstall cheese head machine screws with a drop of Loctite\* No. 222 on the thread of each screw.

#### **To Replace The Die (Position 18)**

1. Remove housing cover ZL (position 66), by removing 4 hexagon socket shoulder screws (position 64).
2. Remove sealing lever (position 62), by loosening hexagon socket cap screw (position 61).
3. Remove woodruff key (position 1).
4. Remove eccentric shaft (position 72).
5. Remove the total internal assembly by tilting it at a 20 degree angle (see diagram below) and pull out with pliers by eccentric shaft plunger (position 76), at the same time making sure to hold internal assembly together with other hand, exposing die on the underside of the die and knife block (position 15).
6. Remove 4 cheese head machine screws (position 13).
7. Remove die, clean area, and replace with new die, then reinstall cheese head machine screws with a drop of Loctite\* No. 222 the thread of each screw.
8. To reinstall the internal assembly follow the installation of internal assembly instructions below.
9. Reinstall the eccentric shaft observing its relative position to the cam (position 45).
10. The cam lever (position 71) must engage with its tip into the cavity of the cam. The components should align together and operate smoothly, please do not force the parts together.
11. Make certain that the area is clean and well greased with white grease.
12. **Important: Make certain that the roller (position 78) is in its position.**
13. Reinstall housing cover ZL, then reinstall hexagon socket shoulder screws with a drop of Loctite\* No. 222 on the thread of each screw.
14. Reinstall woodruff key and sealing lever.

#### **Removal of Internal Assembly ZL90**

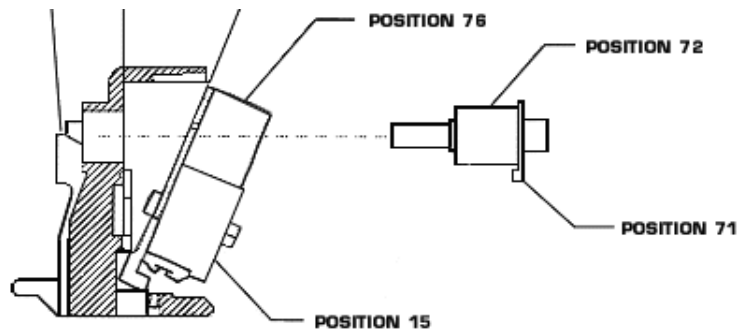


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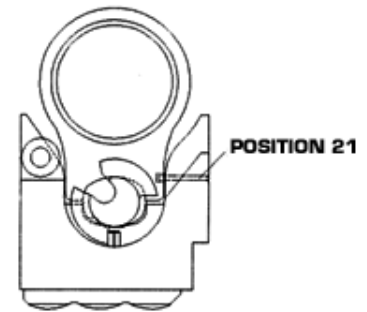
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**Installation of Internal Assembly ZL90**

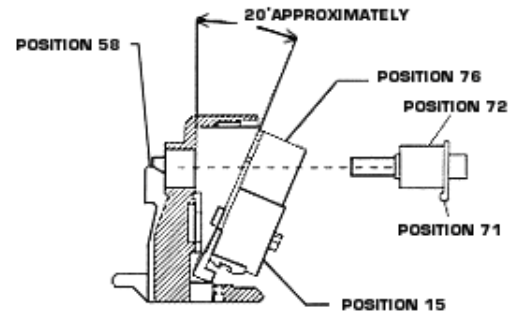
**Figure 1A**

Place the cam as per drawing, with the long width sitting flat in the die and knife block. Add white grease throughout. Then place the eccentric shaft plunger on top of the cam and fasten by pushing the connection pin, position 21 (making sure the groove on this pin is facing the outside of the die and knife block) through hole in die and knife block and into like slot on eccentric shaft plunger.



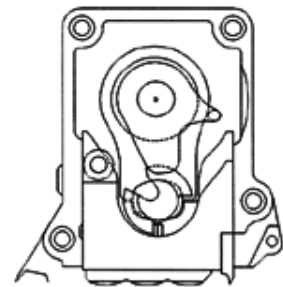
**Figure 1B**

Tilt the internal assembly approximately 20 degrees and place into housing making sure the back up hook is sitting in its slot in the housing.



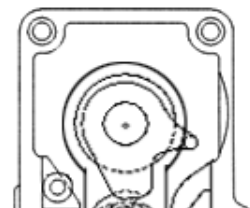
**Figure 1C**

Make sure the cam lever is attached to the eccentric shaft. Then push it through the hole of eccentric shaft plunger and the housing until it is flush.

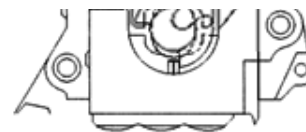


**Figure 1D**

Turn the cam with pliers in a clockwise direction until it sits in position shown in this drawing.



it sits in position shown in this drawing.



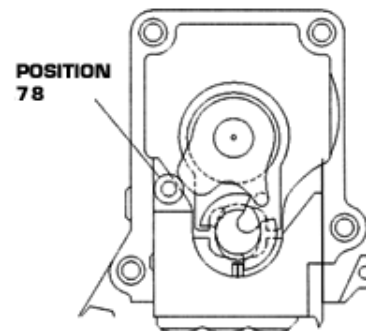
**Figure 1E**

Turn cam lever in a clockwise direction with fingers until it sits in front of the cavity of the cam.

Important: Make certain that the roller (position 78) is in its position.

Then install the housing cover and the sealing lever making sure they sit properly and operate smoothly,

do not force.



#### **To Replace The Lower Cutter (Position 55)**

1. Remove cheese head machine screw (position 17) located on the underside of the housing (position 58).
2. With small flat head screwdriver push out lower cutter ZL90 from its position.
3. Install and position new lower cutter ZL90 making sure the thinner end faces toward outside of housing.
4. Reinstall cheese head machine screw with a drop of Loctite\* No. 222 on the thread of each screw.

#### **To Replace the Punch ZL (Position 31)**

1. Remove lever ZL (position 25) by loosening hexagon socket cap screw (position 24).
2. Remove woodruff key (position 29).
3. Remove lock housing assembly ZL by removing 4 hexagon socket cap screws (position 52) and 2 hexagon socket cap screws (position 51).
4. Remove lock housing cover ZL (position 34).
5. Remove open link ZL (position 50) and link pin (position 48).
6. Remove punch ZL, replace with new punch ZL, then reinstall link pin and open link ZL.
7. Make certain that the area is clean and well greased with white grease. Attach lock housing cover ZL. Then reattach lock housing assembly ZL to front of housing (position 58).

#### **To Replace The Compression Spring (Position 68) and Ball (Position 67)**

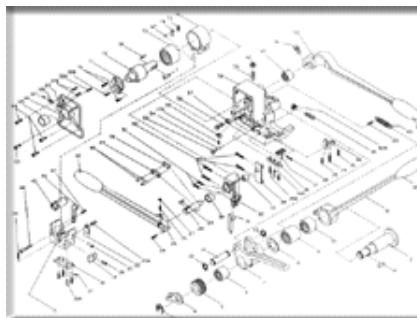
1. Remove housing cover ZL (position 66), by removing 4 hexagon socket shoulder screws (position 64).
2. Remove spring holder ZL (position 69) by removing 3 cheese head machine screws (position 17A) from the inside of housing cover ZL.
3. Remove compression spring, then ball and replace with new in this order.
4. Reinstall spring holder ZL to housing cover ZL with cheese head machine screws and add a drop of Loctite\* No. 222 on the thread of each screw.
5. **Important: Make certain that the roller (position 78) is in its position.**
6. Reinstall housing cover ZL. then reinstall hexagon socket shoulder screws with a drop of

6. Reinstall housing cover ZL, then reinstall housing cover shoulder screws with a drop of Loctite\* No. 222 on the thread of each screw.
7. Reinstall woodruff key and lever ZL.

\*Loctite is a registered trademark of the Loctite Corporation.

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### ZL90 DIAGRAM



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This Diagram is available in a Portable Document Format (PDF) file. To view it, you need to have Adobe Acrobat Reader version 4.0 installed on your system. Acrobat Reader is available as a free download from the [Adobe Acrobat Reader site](#).

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### ZL90 PARTS LIST

Position	Part Number	Part Name	Parts per Tool
1,1A	ZR-0001	Woodruff Key	2
2	ZR-0313	Feedwheel Shaft 1 1/4" (32 mm)	1
3	ZR-0003	External Retaining Ring	1
4	ZR-0315	Strap Guide 1 1/4" (32 mm)	1
5	ZR-0312	Feedwheel 1 1/4" (32 mm)	1
6	ZR-0316	Roller Bearing 1 1/4" (32 mm)	1
7	ZR-0300	Feedwheel Lever 1 1/4" (32 mm)	1
8	ZR-0010	Washer	1
9	ZR-0011	Roller Clutch and Bearing Assembly	1
10	ZR-0317	Roller Clutch 1 1/4" (32 mm)	1
11	ZR-0301	Tension Lever 1 1/4" (32 mm)	1
12	ZR-0014	Handle	1
13	ZR-0318	Cheese Head Machine Screw	4
14	ZR-0319	Long Handle	2
15	ZR-0304	Die and Knife Block 1 1/4" (32 mm)	1
16	ZR-0016	Dowel Pin	3
17, 17A	ZR-0017	Cheese Head Machine Screw	4
18	ZR-0320	Die 1 1/4" (32 mm)	1
19	ZR-0321	Knife 1 1/4" (32 mm) (Includes ZR-0021)	1
20	ZR-0021	Spring Tension Pin	1
21	ZR-0022	Connection Pin	1
22	ZR-0311	Back Up Hook 1 1/4" (32 mm)	1

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23	ZR-0024	Spring Tension Pin	2
24	ZR-0203	Hexagon Socket Cap Screw	1
25	ZR-0200	Lever ZL	1
26	ZR-0206	Hexagon Socket Set Screw	1
27	ZR-0208	Nut	1
28	ZR-0207	Eccentric Shaft ZL	1
29	ZR-0213	Woodruff Key	1
30	ZR-0214	Bronze Bushing	1
31	ZR-0402	Punch ZL 1 1/4" (32 mm)	1
32	ZR-0400	Lock Housing ZL 1 1/4" (32 mm)	1
33	ZR-0215	Bronze Bushing	1
34	ZR-0401	Lock Housing Cover ZL 1 1/4" (32 mm)	1
35	ZR-0033	Cheese Head Machine Screw	2
36	ZR-0322	Punch 1 1/4" (32 mm)	1
37	ZR-0310	Gripper 1 1/4" (32 mm)	1
38, 38A	ZR-0032	Spring Tension Pin	2
39	ZR-0034	Spring Tension Pin	2
40	ZR-0037	Strap Stop Front 3/4" , 1 1/4" (19 mm, 32 mm)	1
41	ZR-0038	Hexagon Socket Set Screw	1
42, 42A	ZR-0039	Nut	2
43	ZR-0040	Extension Spring	1
44	ZR-0041	Hexagon Socket Cap Screw	1
45	ZR-0306	Cam 1 1/4" (32 mm)	1
46	ZR-0045	Die Block Back Up	1
47	ZR-0046	Spring Tension Pin	1
48	ZR-0216	Link Pin	2
49	ZR-0210	Closed Link ZL	1
50	ZR-0211	Open Link ZL	1
51	ZR-0220	Hexagon Socket Cap Screw	2
52	ZR-0221	Hexagon Socket Cap Screw	4
53	ZR-0323	Shaft	1
54	ZR-0324	Pin	1
55	ZR-0403	Lower Cutter 1 1/4" (32 mm)	1
56	ZR-0314	Strap Stop Rear 1 1/4" (32 mm)	1
57	ZR-0052	Nut	1
58	ZR-0302	Housing 1 1/4" (32 mm)	1
59	ZR-0054	Hexagon Socket Set Screw	1
60	ZR-0325	Roller Bearing 1 1/4" (32 mm)	1
61	ZR-0056	Hexagon Socket Cap Screw	1
62	ZR-0057	Sealing Lever	1
63	ZR-0334	Hexagon Socket Cap Screw	2
64	ZR-0058	Hexagon Socket Shoulder Screw	4
65	ZR-0326	Roller Bearing 1 1/4" (32 mm)	1
66	ZR-0305	Housing Cover 1 1/4" (32 mm)	1
67	ZR-0043	Ball	2
68	ZR-0327	Compression Spring 1 1/4" (32 mm)	1
69	ZR-0307	Spring Holder ZL 1 1/4" (32 mm)	1



70	ZR-0061	Cheese Head Machine Screw	2
71	ZR-0308	Cam Lever 1 1/4" (32 mm)	1
72	ZR-0309	Eccentric Shaft 1 1/4" (32 mm)	1
73	ZR-0328	Roller Bearing 1 1/4" (32 mm)	1
74	ZR-0044	Compression Spring	1
75	ZR-0075	Spring Tension Pin	1
76	ZR-0303	Eccentric Shaft Plunger 1 1/4" (32 mm) (Includes ZR-0043, ZR-0044, ZR-0064, ZR-0328)	1
78	ZR-0076	Roller	1
79	ZR-0077	Roller Pin	1
80	ZR-0330	Washer	1
81	ZR-0331	Button Head Screw	1
82	ZR-0333	Spring Tension Pin	1
83	ZR-0028	Dowel Pin	1
--	ZR-0332	Operation Manual and Parts List for ZL90 Series Tools.	1

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