



Hand-Held Scarifiers



Needleguns



Walk-Behind Scarifiers



Impact Tools



Sanders



Specialty Tools



Industrial Vacuums



Model 25, 40 & 40EX Needlegun Pistol Grip and Extended Reach *Pneumatic*



Configurations

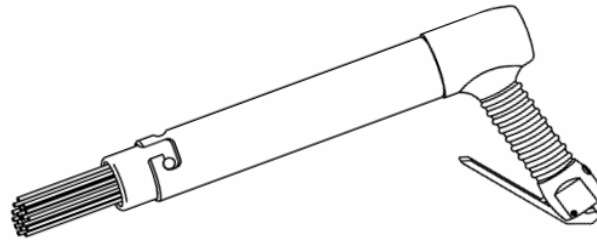
Part	Description	Accessories Furnished
Model 25 – Pistol Grip (not pictured)		
130.2256	Needlegun, System	Shroud(Flat, IC), needle reload, whip assy., oil bottle, tool kit, carry case.
130.051	Needlegun, Flat	Shroud(Flat)
130.052	Needlegun, Inside	Shroud(Inside corner)
130.048	Needlegun, Bare	None
Model 40 – Pistol Grip		
130.2406	Needlegun, System	Shroud(Flat, IC), needle reload, whip assy., oil bottle, tool kit, carry case.
130.050	Needlegun, Flat	Shroud(Flat)
130.052	Needlegun, Inside	Shroud(Inside corner)
130.049	Needlegun, Bare	None
Model 40EX – Extended Reach		
180.0141	Needlegun, Flat	Shroud(Flat)
180.0142	Needlegun, Inside	Shroud(Inside corner)
180.0140	Needlegun, Bare	None

DESCO Mfg. Co., Inc.

23031 Arroyo Vista • Rancho Santa Margarita, CA 92688
949.858.7400 • 949.858.9141 fax • 800.337.2648 toll free
www.descomfg.com • info@descomfg.com

Contents

CHAPTER 1 – GENERAL INFORMATION	1
1.1 INTRODUCTION	1
1.2 PURPOSE AND FUNCTION	1
1.3 CAPABILITIES.....	1
1.4 MAIN APPLICATIONS.....	2
1.5 TECHNICAL SPECIFICATIONS.....	2
1.6 CONSUMABLES AND ACCESSORIES.....	2
CHAPTER 2 – SAFETY PRECAUTIONS.....	3
2.1 READ OPERATING INSTRUCTIONS	3
2.2 ALWAYS WEAR APPROVED EYE PROTECTION	3
2.3 HEARING PROTECTION IS RECOMMENDED.....	3
2.4 AVOID PROLONGED EXPOSURE TO VIBRATION	3
2.5 90 PSI MAXIMUM.....	3
2.6 IDLE RUNNING	3
2.7 WORK AREA	4
2.8 PERSONAL SAFETY	4
2.9 TOOL USE AND CARE	4
CHAPTER 3 – OPERATING INSTRUCTIONS.....	5
3.1 PRE-OPERATION.....	5
3.2 OPERATION	6
3.2.1 <i>Power On/Off</i>	6
3.2.2 <i>Starting the Tool</i>	6
3.2.3 <i>Needle Angle for Best Performance</i>	6
3.3 POST-OPERATION AND STOWAGE.....	7
CHAPTER 4 – MAINTENANCE INSTRUCTIONS.....	8
4.1 CLEANING	8
4.2 LUBRICATION AND NEEDLE REPLACEMENT	8
4.2.1 <i>Disassembly Procedure</i>	8
4.2.2 <i>Inspection, Cleaning and Lubrication Procedure</i>	9
4.2.3 <i>Assembly Procedure</i>	10
4.2.4 <i>Airway Lubrication Procedure</i>	11
CHAPTER 5 – TROUBLESHOOTING.....	12
CHAPTER 6 – SCHEMATICS.....	14
6.1 DUST COLLECTOR, MODEL 25 AND MODEL 40	14
6.2 NEEDLEGUN, MODEL 25.....	15
6.3 NEEDLEGUN, MODEL 40.....	16



Chapter 1 – General Information

1.1 Introduction

This publication describes the Desco Model 25, Model 40 and Model 40EX needle scalers. The ergonomic design offers significant advantages over ordinary needle scalers, including: a) low vibration, b) low air consumption and, c) 28 needles – an unusually high number. Together, these features provide superior productivity and operator comfort.

Topics covered in this manual include operator safety, proper operation, maintenance procedures and troubleshooting. These instructions are prepared to help you obtain maximum performance and maintain the tool for maximum service life.

1.2 Purpose and Function

The machine is a light weight, portable, pneumatic powered tool designed for cleaning hard surfaces of unwanted coatings or contamination. The principal of operation is to strike a surface with a set of tightly clustered needles at a high rate of speed. The needles are steel rods which perform as chisels to chip or abrade away unwanted material.

1.3 Capabilities

Needleguns excel at cleaning obstacles where other tools are not effective. For example, irregular shapes, corners, indentations or bolt heads are situations where the needlegun does a superior cleaning job.

Performance is enhanced by two design characteristics of the needlegun:

- a) **Accessibility** – Needleguns reach into confined spaces where other tools can not.
- b) **Contour conformance** – Needles conform to the surface being cleaned, making them ideal for stepping in-over-and-around irregularities.



Figure 1.3 – Needles conforming to surface irregularities.

1.4 Main Applications

- De-slugging welds
- Shot-peen profile (Capable of achieving SSPC SP-11)
- Stripping paint
- Cleaning castings
- Cleaning angles & corners
- Removing rust & corrosion
- Removing non-skid

1.5 Technical Specifications

Specification	Model 25	Model 40	Model 40EX
Air requirement	90 PSI @ 3 CFM	90 PSI @ 3 CFM	90 PSI @ 3 CFM
Strokes per minute	3,400 SPM	3,400 SPM	3,400 SPM
Stroke length	7/8"	7/8"	7/8"
Needle Size (Number)			
Standard w/gun	3mm x 7" (19)	3mm x 7" (28)	3mm x 7" (28)
Optional	2mm x 7" (38)	2mm x 7" (58)	2mm x 7" (58)
Vibration level	3.5 m/s ²	3.5 m/s ²	3.5 m/s ²
Overall length	11- 7/8"	11- 7/8"	54- 1/2"
Weight	6- 1/8 lbs.	7- 7/8 lbs.	13 lbs.
Air inlet	1/4" NPT	1/4" NPT	1/4" NPT
Hose size	3/8" I.D. min.	3/8" I.D. min.	3/8" I.D. min.

1.6 Consumables and Accessories

Part	Description
Replacement Needles (All Models)	
130.024	Needle, 7" x 3mm, flat point (standard)
130.024.2	Needle, 7" x 3mm, flat point (200/pack)
9130.024	Needle, 7" x 3mm, flat point (1000/pack)
130.026	Needle, 7" x 3mm, chisel point
130.026.2	Needle, 7" x 3mm, chisel point (200/pack)
9130.026	Needle, 7" x 3mm, chisel point (1000/pack)
130.023	Needle, 7" x 2mm, flat point (2mm needle holder required)
9130.023	Needle, 7" x 2mm, flat point (1000/pack)
130.020	Needle, 7" x 3mm, flat point, stainless steel
9130.020	Needle, 7" x 3mm, flat point, stainless steel, (100/pack)
130.028	Needle, 7" x 3mm, flat point, beryllium/copper (spark resistant)
Accessories and Replacement Parts	
500.008	Whip assembly (lubricator/filter/evaporator)
500.062	Replacement filter for whip assembly
500.015	Oil bottle
130.043	Dust collector, Model 25, flat style
130.008	Dust collector, Model 25, inside corner style
130.055	Needle holder, Model 25, for 3mm needles
130.077	Needle holder, Model 25, for 2mm needles
130.059	Dust collector, Model 40, flat style
130.060	Dust collector, Model 40, inside corner style
130.056	Needle holder, Model 40, for 3mm needles
130.078	Needle holder, Model 40, for 2mm needles
500.060	Replacement brush for flat style dust collector
550.990	Repair kit, Model 40

CHAPTER 2 – Safety Precautions



WARNING Read and understand all instructions

Failure to follow all instructions listed below may result in damage to the tool and/or serious personal injury.

2.1 Read Operating Instructions

Always become familiar with all the instructions and warnings before operating any power tool.

2.2 Always Wear Approved Eye Protection



Impact resistant eye protection should meet or exceed the standards as set forth in the United States ANSI Z87.1, Occupational and Educational Eye and Face Protection. Look for the marking Z87.1 on your eye protection to insure that it is an approved style. For further information, ANSI Z87.1, Occupational and Educational Eye and Face Protection, is available from the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036.

2.3 Hearing Protection is Recommended



Hearing protection should be used when the noise level exposure equals or exceeds an 8 hour time-weighted average sound level of 85dBA. Process noise, reflective surfaces, other tools being operated nearby, all add to the noise level present in your work area. If you are unable to determine your noise level exposure, we recommend the use of hearing protection.

2.4 Avoid Prolonged Exposure to Vibration



Pneumatic tools can vibrate during use. Prolonged exposure to vibration or very repetitive hand and arm movements, can cause injury. Stop using any tool if discomfort, tingling feeling or pain occurs. You should consult your physician before resuming use of the tool.

2.5 90 PSI Maximum



This tool is designed to operate at an air pressure of 90 pounds per square inch pressure (90 PSI) maximum, at the tool. Use of higher air pressure can, and may cause injury. Also, the use of higher air pressure places the internal components under loads and stresses they were not designed for, causing premature tool failure. The air supply should be clean and dry, preferably lubricated. For best results, drain the moisture from your compressor daily.

2.6 Idle Running

Idle operation will shorten the life of the tool and needles and should be avoided.

2.7 *Work Area*

1. **Keep work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres,** such as in the presence of flammable liquids, gasses, or dust. Power tools create sparks which may ignite dust or fumes.
3. **Keep bystanders away** while operating a power tool.

2.8 *Personal Safety*

1. **Stay alert,** watch what you are doing and use common sense when operating a power tool. Do not operate tool when tired or substance impaired.
2. **Dress properly.** Do not wear loose clothing or jewelry. Contain long hair. Keep hair, clothing and hands away from moving parts.
3. **Use safety equipment.** Always wear eye protection. Other precautions may be required depending on the situation. These include: ear protection (ear plugs) vibration protection (gloves), steel toe shoes or hard hats.
4. **Avoid accidental starting.** Be sure the switch is off before attaching to power source.
5. **Do not overreach.** Keep proper footing and balance at all times.

2.9 *Tool Use and Care*

1. **Secure the work.** Use clamps or other securing method to firmly hold work to a stable platform. Do not attempt to hold work in one hand and operate the tool with the other hand.
2. **Do not force tool.** Apply light hold down pressure and let the tool do the work. Use the correct tool for your application.
3. **Do not tape trigger closed** to fashion a trigger lock. If you drop or otherwise loose control of the tool, it will continue to run and may cause dangerous results.
4. **Disconnect from power source before making adjustments** or changing accessories. Failure to disconnect may result in injury if the tool were to accidentally start while adjusting.
5. **Store tools out of reach of untrained persons.** Tools are dangerous in the hands of untrained users.
6. **Maintain tools with care.** Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control. Regularly check for broken or worn needles and replace as needed.
7. **Check for misaligned or binding of moving parts,** breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.

CHAPTER 3 – Operating Instructions

3.1 Pre-Operation

- **Safety** – You have considered the job site environment and implemented safety precautions that are situation appropriate.
- **Needles** – Inspect for missing, broken or bent needles. Typically, you need to **replace all the needles**, not just the broken ones because mixing old with new needs often results in needles of unequal length. It is permissible to replace only broken needles if doing so results in needles of equal length.
- **Air Supply** – Setup all things needed to supply clean, dry compressed air to the tool at your job site at the required pressure (90psi) and volume (3cfm). This includes: fittings, a hose and a filter/lubricator (optional). A 50', 1/2" ID hose is recommended as well as large body fittings to allow maximum air flow. Inspect hoses and fittings before each use.
- **Vacuum** – When using a dust collector, connect the vacuum hose to the tool.
- **Lubricator** – Remove oil fill cap and place 1/2 oz of light machine oil (ISO VG32 or equal lubricating oil) in the lubricator. Use plastic oil bottle (included in kit), hold firmly against opening and squeeze. The ball check valve prevents oil from flowing out the fill hole. Top off oil in lubricator at 8 hour intervals.

Note: If loss of air pressure occurs, the filter in lubricator may need to be replaced. Stop machine, shut off air supply, and disconnect hose from machine. To replace filter, simply remove end cap, remove old filter, insert new filter, and replace cap as shown previously in Figure 3-1.

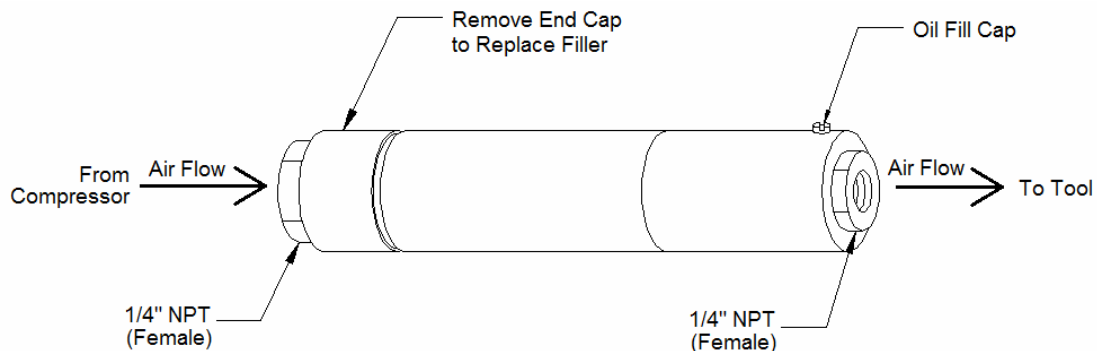


Figure 3-1 – Filter-lubricator


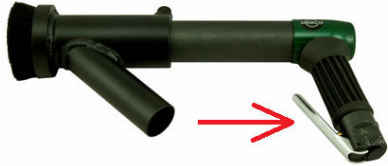


3.2 Operation

When setup steps are complete, you are ready to operate the tool. The following are step-by-step procedures for operating the needlegun.

3.2.1 Power On/Off

Power is controlled with a throttle lever. To operate, squeeze the throttle lever. To stop, release the lever.

The *power on/off sequence* is **critical** to effective dust containment.

Sequence	First Action	Second Action
On	Vacuum On 	Tool On 
Off	Tool Off 	Vacuum Off 

3.2.2 Starting the Tool

- A. **Grasp Firmly** – with both hands. Right hand on pistol grip handle and left hand on tool body.
- B. **Position** – Place tool on work surface with needles contacting the area to be cleaned.
- C. **Power On** – Start the tool using the above power on sequence. Squeeze the throttle lever when ready to begin.
- D. **Power Off** – To stop the tool, release the throttle lever.

3.2.3 Needle Angle for Best Performance

- A. **Wrong** – **Do not** hold the needles straight at exactly 90° to the surface.
- B. **Wrong** – **Do not** hold the needles at a sharp angle to the surface.
- C. **Right** – Hold needles at a slight angle of about 85° to the surface.



3.3 Post-Operation and Stowage


Disconnect whip assembly from machine and place 5-8 drops of light machine oil (ISO VG32 or equal lubricating oil) in air inlet. Reconnect whip assembly to air inlet and run motor for 2-3 seconds (just long enough for oil to get into motor, but not pass through) to flush the system.

Wipe off all dust and dirt with a dry rag.

Check for broken or worn needles. Replaced as necessary.

Remove, coil, and secure air hose with a piece of string or wire.

CHAPTER 4 – Maintenance Instructions

 **WARNING** – Always disconnect tool from power supply before performing any maintenance or inspection operation.

4.1 Cleaning

Clean the exterior of the needlegun after each use by wiping off all dust and dirt with a clean, dry cloth.

4.2 Lubrication and Needle Replacement

Every 8 hours of operation and **when needles are changed**, the following lubrication/cleaning maintenance procedure should be performed.

4.2.1 Disassembly Procedure

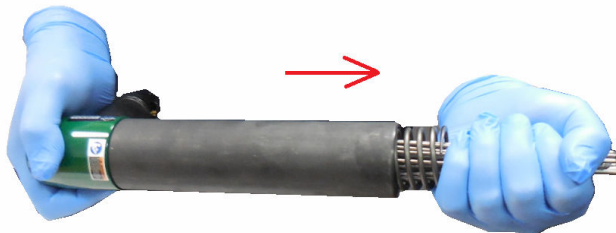
A. Remove Dust Collector – (If equipped) 1) Loosen Allen bolt securing pinch clamp and, 2) slide dust collector forward.



B. Remove Front Assembly Nose Piece – 1) Remove Allen bolt securing nose piece to tool body and, 2) Rotate nose piece to the right and pull forward to remove.



C. Remove Spring, Needles and Needle Holder – Grasp needle cluster and pull forward. The spring, needles and needle holder will come out as a unit.



- D. Remove Driver** – In one hand, hold the tool body pointing downward. Now firmly jolt the open cylinder into the palm of the other hand. The driver will fall into your open palm.



4.2.2 Inspection, Cleaning and Lubrication Procedure

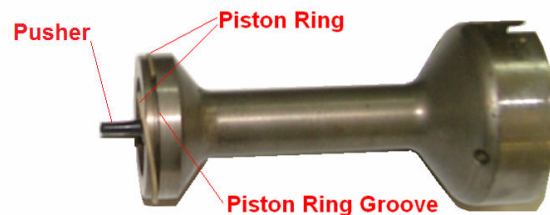
A. Cylinder Housing

- Inspect for nicks and cracks; replaced as required.
- Clean housing bore interior by wiping with clean dry cloth.
- Lubricate housing interior by placing a few drops of pneumatic tool oil in the cylinder and distributing by wiping with a clean cloth.



B. Driver

- Inspect for nicks or cracks; replaced as required. Pay close attention to a) the Pusher, a small plastic piece at the small end of the driver and, b) the Piston Ring. Replace either if damaged.



Cont'd. on Next Page

B. Driver – *Cont'd.*

- Clean the driver wiping with a clean dry cloth.
- Lubricate the driver by placing a few drops of pneumatic tool oil on both the large and small ends and distributing by wiping with a clean cloth.



C. Needle Holder and Needles

- Inspect needle holder for damage; replaced as required.
- Clean needle holder and needles by wiping with a clean dry cloth.
- Replace broken, bent or worn needles. Replace all needles if mixing old and new needles results in needles of noticeably different lengths.
- Lubricate needle holder by placing a few drops of pneumatic tool oil on the outside rim and distributing by wiping with a clean cloth



4.2.3 Assembly Procedure

- A. **Driver** – Insert small end of driver into cylinder barrel.



- B. Needle Holder, Needles and Spring** – Insert needle holder assembly as shown.



- C. Front Assembly Nose Piece** – 1) Insert nose piece, align stud, twist to lock, 2) secure nose piece with Allen bolt.



- D. Dust Shroud** – Insert dust shroud (if applicable). Adjust so that needles are about ½" from tip of brush bristles.

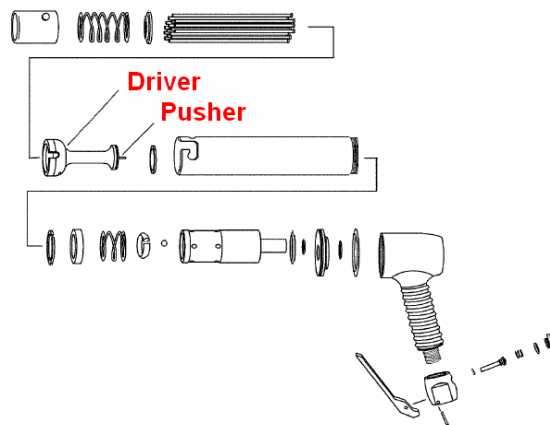
4.2.4 Airway Lubrication Procedure

Lubricate the tool airway by placing 3-4 drops of pneumatic tool in the air fitting. Re-attach an air hose and run the tool for a few seconds to disburse the oil.



CHAPTER 5 – Troubleshooting

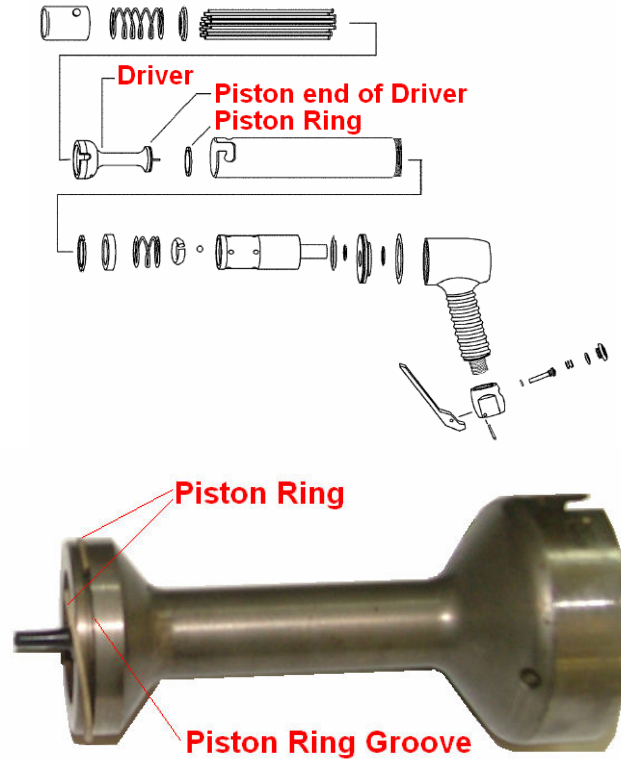
Symptom	Probable Cause
Tool Jammed	When the tool jams, the most likely cause is lack of lubrication. To correct, disassemble, clean, inspect, lubricate and reassemble. If the problem persists, please contact your Desco representative.
Needles breaking	Short needle life is often caused by the tool operator bearing down on the tool too hard. Use light hold down pressure only and let the tool do the work. Be sure to dis-assemble and replace broken needles before proceeding.
Slow performance	<p>Slow performance is usually caused by insufficient air or lack of lubrication.</p> <p>For insufficient air,</p> <ul style="list-style-type: none"> • first check that your air source is putting out the required 90 psi at 3 cfm • Next check the air supply hose. A 1/2 inch diameter, 50 foot long hose is recommended. Hoses less than 1/2 inch will restrict air flow. Hose length affects air pressure; the longer the hose, the greater the pressure loss. • Finally, if using a Lubricator, Filter, Evaporator, check to see if the filter is clogged. <p>For lack of lubrication, check to see when the tool was last lubricated. Perform maintenance as necessary.</p>
Air flows, needles do not move	When air passes through the needlegun, but needles do not reciprocate, the most likely cause is the “Pusher” is missing or damaged. To resolve, disassemble, inspect and replace pusher as necessary.



Symptom	Probable Cause
---------	----------------

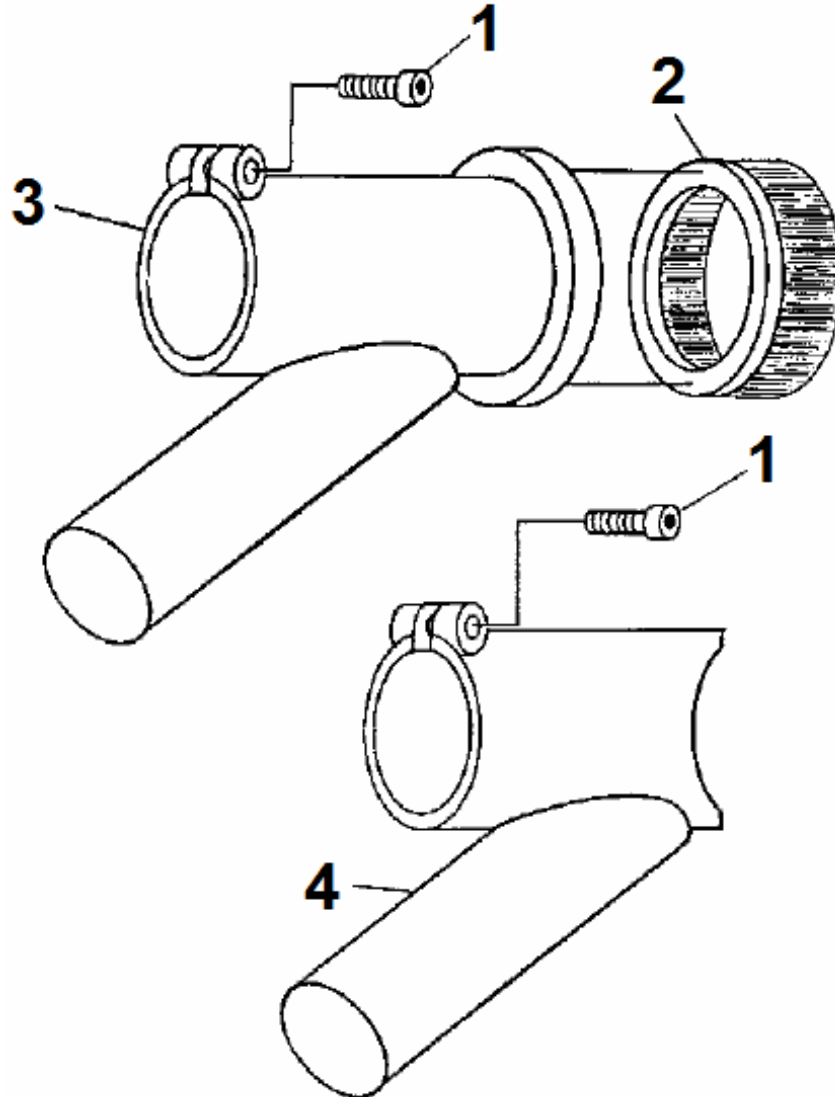
No Power

When air passes through the needlegun, and the needles move but with little or no power, the most likely cause is the piston ring is missing or damaged. To resolve, disassemble, inspect piston ring and replace as necessary.



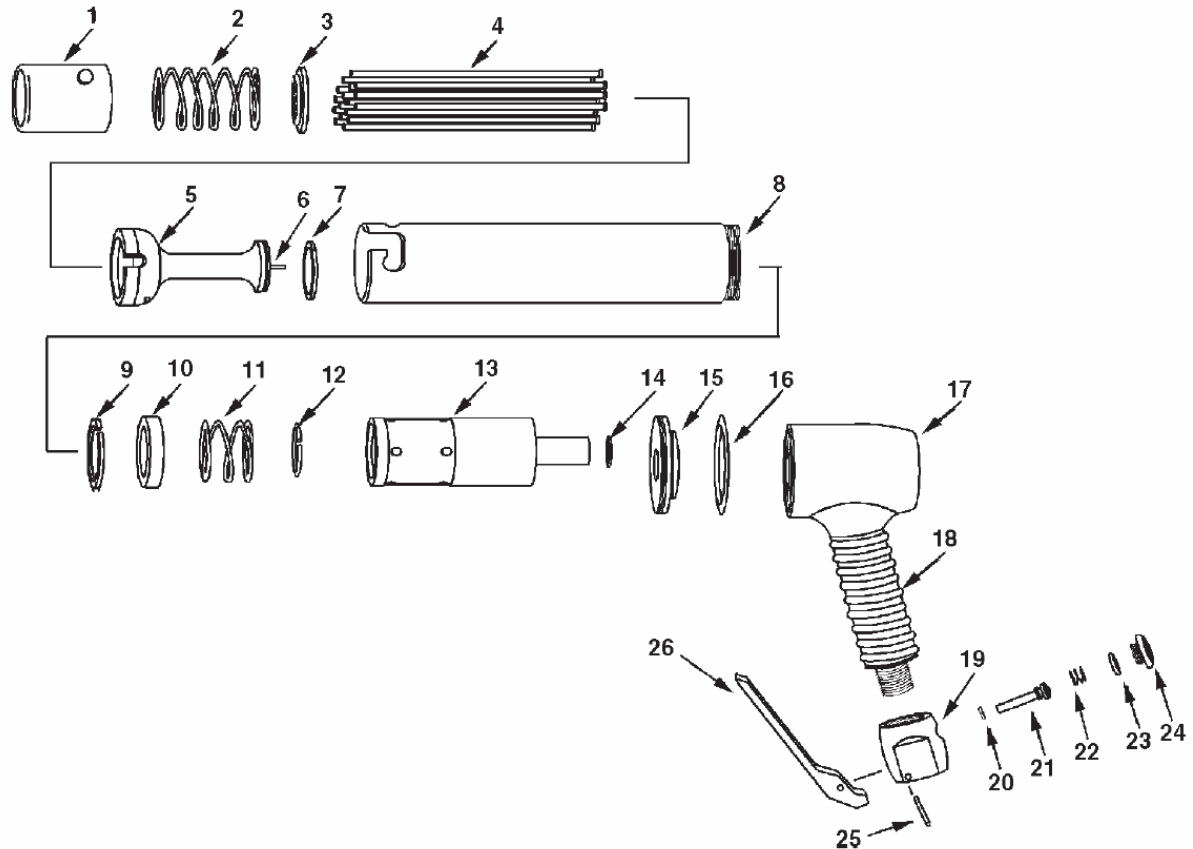
CHAPTER 6 – Schematics

6.1 Dust Collector, Model 25 and Model 40



Ref	Part	Description
1	750.076	Bolt
2	500.060	Brush
3	130.043	Shroud, Flat Style, Model 25
-	130.059	Shroud, Flat Style, Model 40
4	130.008	Shroud, Inside Corner, Model 25
-	130.060	Shroud, Inside Corner, Model 40
5	500.060	Brush

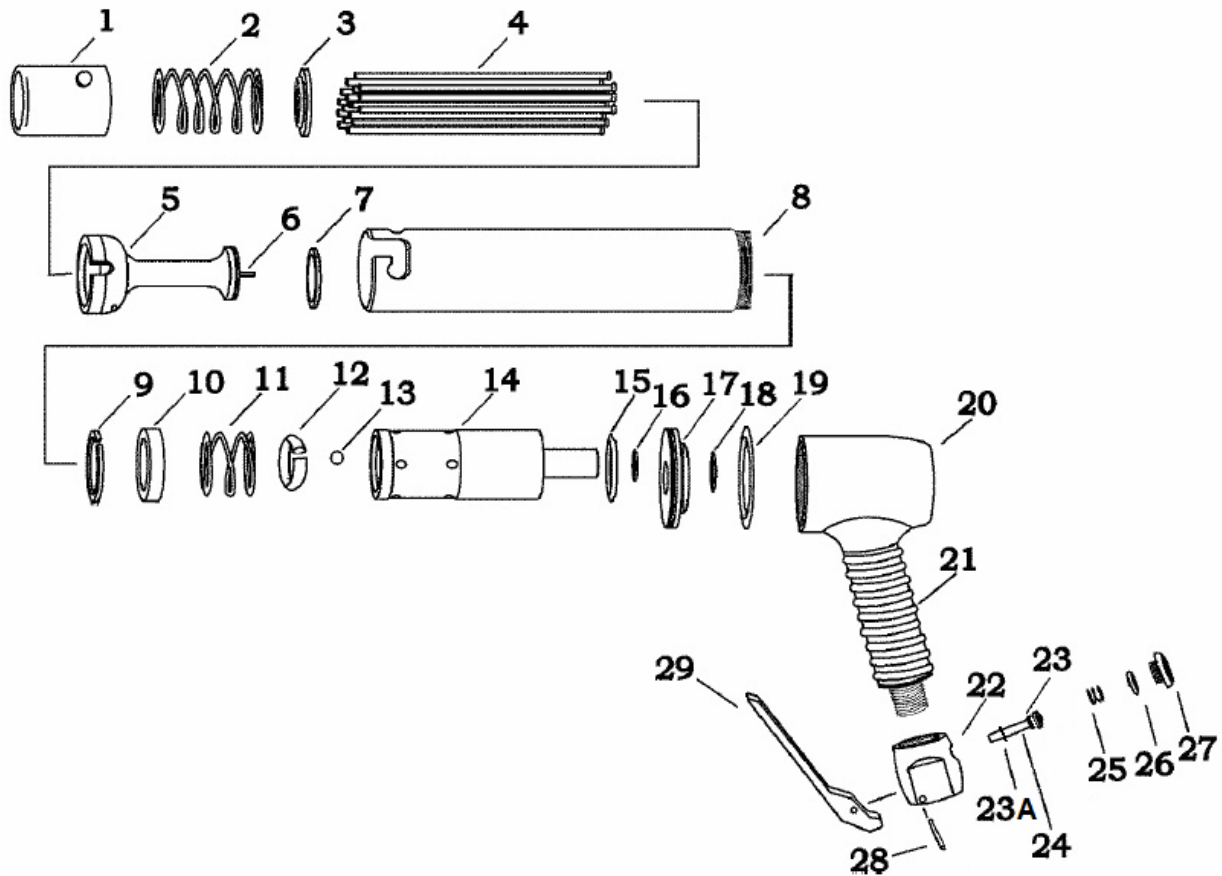
6.2 Needlegun, Model 25



Ref	Part	Description
1	550.961	Front assembly
2	550.962	Spring
3	550.963	3mm Needle holder
-	550.964	2mm Needle holder
4	130.024	3mm Needles (19 req.)
-	130.023	2mm Needles (38 req.)
5	550.965	Driver assembly
6	550.966	Pusher
7	550.967	Piston Ring
8	550.968	Housing
9	550.969	Snap ring
10	550.970	Support ring
11	550.971	Spring
12	550.972	Limit ring

Ref	Part	Description
13	550.973	Cylinder assembly
14	550.974	O-Ring
15	550.975	Divider assembly
16	550.976	O-Ring
17	550.977	Handle assembly
18	550.978	Grip
19	550.979	Valve body
20	550.980	O-Ring valve seat
21	550.981	Valve stem
22	550.982	Valve spring
23	550.983	O-Ring valve cap
24	550.984	Valve cap
25	550.985	Roll pin
26	550.986	Valve lever

6.3 Needlegun, Model 40



Ref	Part	Description
1	550.822	Front Assembly
2	550.820	Spring
3	130.056	3mm Needle Holder
3	130.078	2mm Needle Holder
4	130.024	3mm Needles (Set of 28)
4	130.023	2mm Needles (Set of 58)
5	550.821	Driver
6	550.966	Pusher
7	550.823	Piston Ring
8	550.824	Housing
9	550.825	Snap Ring
10	550.826	Support Ring
11	550.827	Spring
12	550.828	Limit Ring
13	550.987	Ball
14	550.829	Cylinder

Ref	Part	Description
15	550.830	O-Ring
16	550.988	O-Ring
17	550.831	Divider
18	550.989	Seal Ring
19	550.832	O-Ring
20	550.833	Handle Assembly
21	550.834	Grip
22	550.835	Valve Body
23	550.836	O-Ring for Valve Seat
23A	550.99512	O-Ring
24	550.837	Valve Stem
25	550.838	Valve Spring
26	550.839	O-Ring for Valve Cap
27	550.840	Valve Cap
28	550.841	Roll Pin
29	550.842	Valve Lever