



**SCARIFIERS**

Hand-held & Walk-behind



**NEEDLE SCALERS**

Hand-held & Extended Reach



**GRINDERS/SANDERS**

Hand-held & Extended Reach



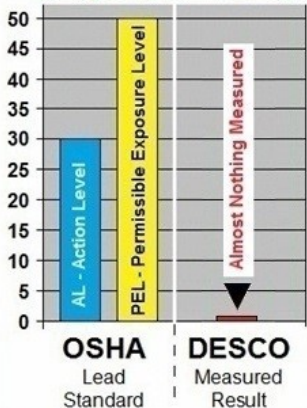
**INDUSTRIAL VACUUMS**

Hazmat & Radiological



**OSHA Compliant\***

(Micrograms per Cubic Meter)



\*Industrial Hygiene report results for tools tested.



**Model 18 Needle Scaler**  
*Pneumatic*



PN 130.118  
w/o Shroud

Convertible Dust Shroud Option  
- Flat style with sleeve  
- Inside Corner style without sleeve

PN 130.218  
w/Shroud

**Configurations**

Part	Description	Remarks
130.118	Needlegun, Model 18	
130.218	Needlegun, Model 18 w/Convertible dust shroud	Converts from Flat style to Inside Corner style without tools.



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## Chapter 1 – General Information

### 1.1 Introduction

This publication describes the Desco Model 18 needle scaler. The ergonomic design offers significant advantages over ordinary needle scalers, including: a) low vibration, b) low air consumption and, c) compact design – enabling reach into tight spaces. 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	Value
Air requirement	90 PSI @ 6 CFM
Strokes per minute	7,000 SPM
Needle Size (count)	3mm x 5" (18)
Vibration level	3.2 m/s <sup>2</sup>
Noise	89 dB
Overall length (tool body only, w/o needles or air fitting)	7.7"
Weight (w/o dust shroud or air fitting)	3.6 lbs.
Air inlet	1/4" NPT
Hose size	3/8" I.D. min.

## 1.6 Consumables and Accessories

Part	Description
<b>Replacement Needles</b>	
130.019	Needle, 5" x 3mm, <b>flat</b> point (qty=1)
130.019.2	Needle, 5" x 3mm, <b>flat</b> point (200/pack)
9130.019	Needle, 5" x 3mm, <b>flat</b> point (1,000/pack)
130.017	Needle, 5" x 3mm, <b>chisel</b> point (qty=1)
130.017.2	Needle, 5" x 3mm, <b>chisel</b> point (200/pack)
9130.017	Needle, 5" x 3mm, <b>chisel</b> point (1,000/pack)
<b>Accessories and Replacement Parts</b>	
500.008	Whip assembly (lubricator/filter/evaporator)
500.062	Replacement filter for whip assembly
500.015	Oil bottle
550.991104	Needle holder, (3mm needles)
130.065	Dust collector (DC), Model 18, inside corner style
130.063	Cust collector adapter, Model 18, sleeve converts inside corner style DC (130.063) to flat style DC. Adapter can not be used with pn 130.065.

## 1.7 Retrofit Model 18 Scaler with DC

If you purchased the Model 18 needle scaler without a dust collector (DC) and want to field retrofit with a DC, you must first trim the rubber cushion sleeve as shown below. Using a sharp utility knife or other suitable tool, cut where shown and remove sleeve from that point forward.



## 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/actuator 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 needles 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 (6cfm). This includes: fittings, a hose and a filter/lubricator (optional). A 50', ½" ID hose is recommended as well as large body fittings (1/4" x 1/2", Desco PN 500.162) 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** – An automatic filter-lubricator is the preferred way to lubricate pneumatic tools and extend tool life. Top off oil in lubricator at 8 hour intervals with ½ oz of light machine oil (ISO VG32 or equal lubricating oil).  
**Note:** *Manual lubrication* is permissible if you do not have an automatic filter-lubricator. See also Chapter 4.2 for more information.

#### Usage Notes:

1. To be most effective, install in-line a maximum of 6 feet from the air tool.
2. Replace filter cartridge every thirty (30) days, depending on conditions of compressed air.
3. To fill oil reservoir, remove fill screw on oiler. Insert plastic tapered spout type oil canister firmly against fill hole. Apply pressure to bottle to overcome ball check. Replace screw and tighten. **Do not over-tighten.**
4. For proper lubrication, the unit must be set by turning the adjustment screw counterclockwise approximately 1/8 to 1 turn. With this setting, the unit will spray a fine mist of oil, good for approximately 40 hours on a 50% duty cycle.  
 Note: The oil flow is factory set to 1/4 turn.

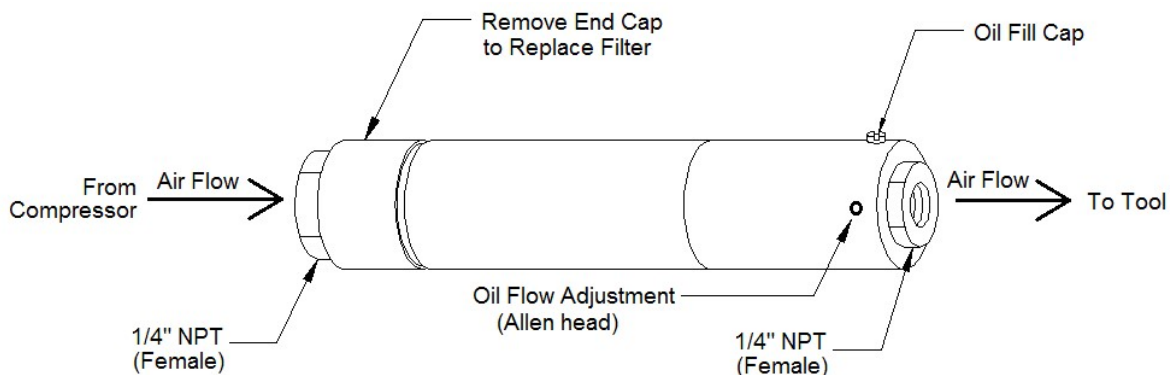


Figure 3-1 – Filter-lubricator

## 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.

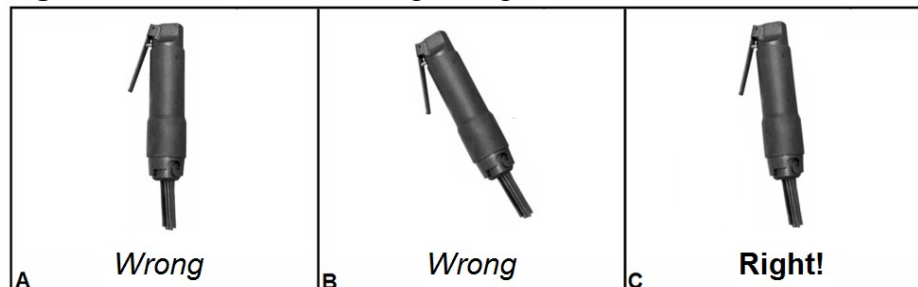
Sequence	First Action	Second Action
On	Vacuum On 	Tool On 
Off	Tool Off 	Vacuum Off 

### 3.2.2 Starting the Tool

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

### 3.2.3 Needle Angle for Best Performance

- Wrong** – *Do not* hold the needles straight at exactly 90° to the surface.
- Wrong** – *Do not* hold the needles at a sharp angle to the surface.
- 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.

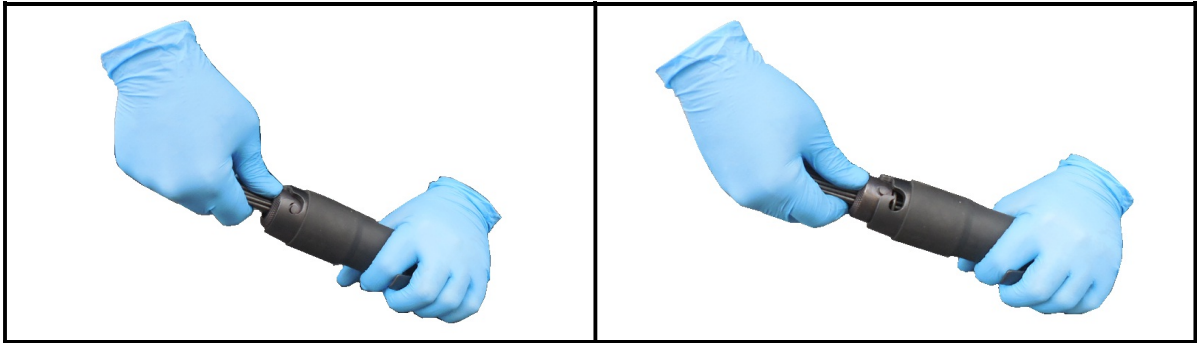
### 4.2 Lubrication

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

See *also* Chapter 3.1 for automatic filter-lubricator information.



## 4.3 Needle Replacement



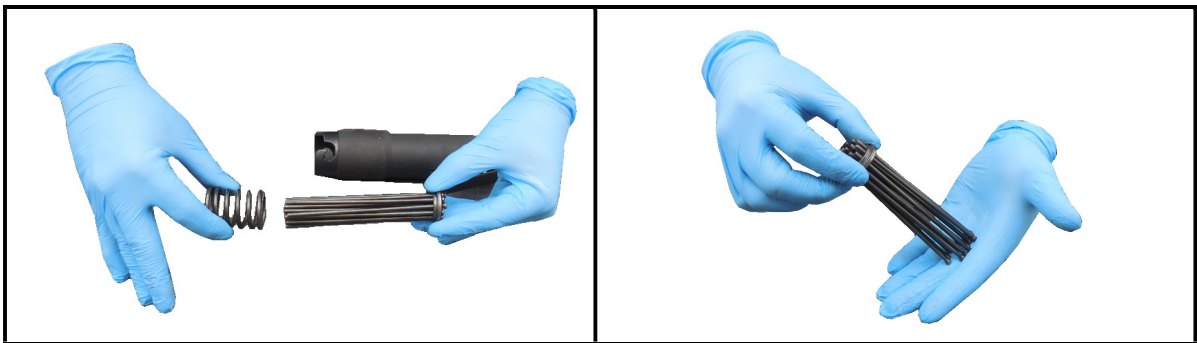
A. Grasp needle assembly.

B. Rotate needle assembly to disengage pins.



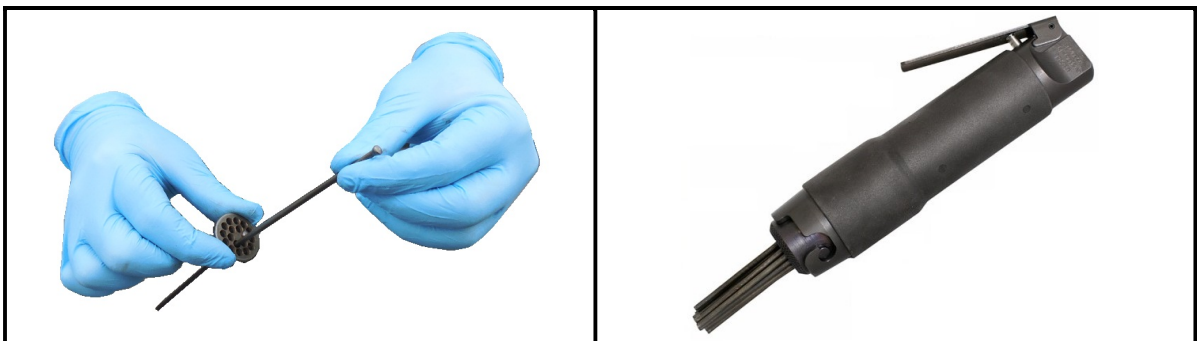
C. Remove needle assembly.

D. Remove needle retainer.



E. Remove spring.

F. Remove old needles from holder, discard.



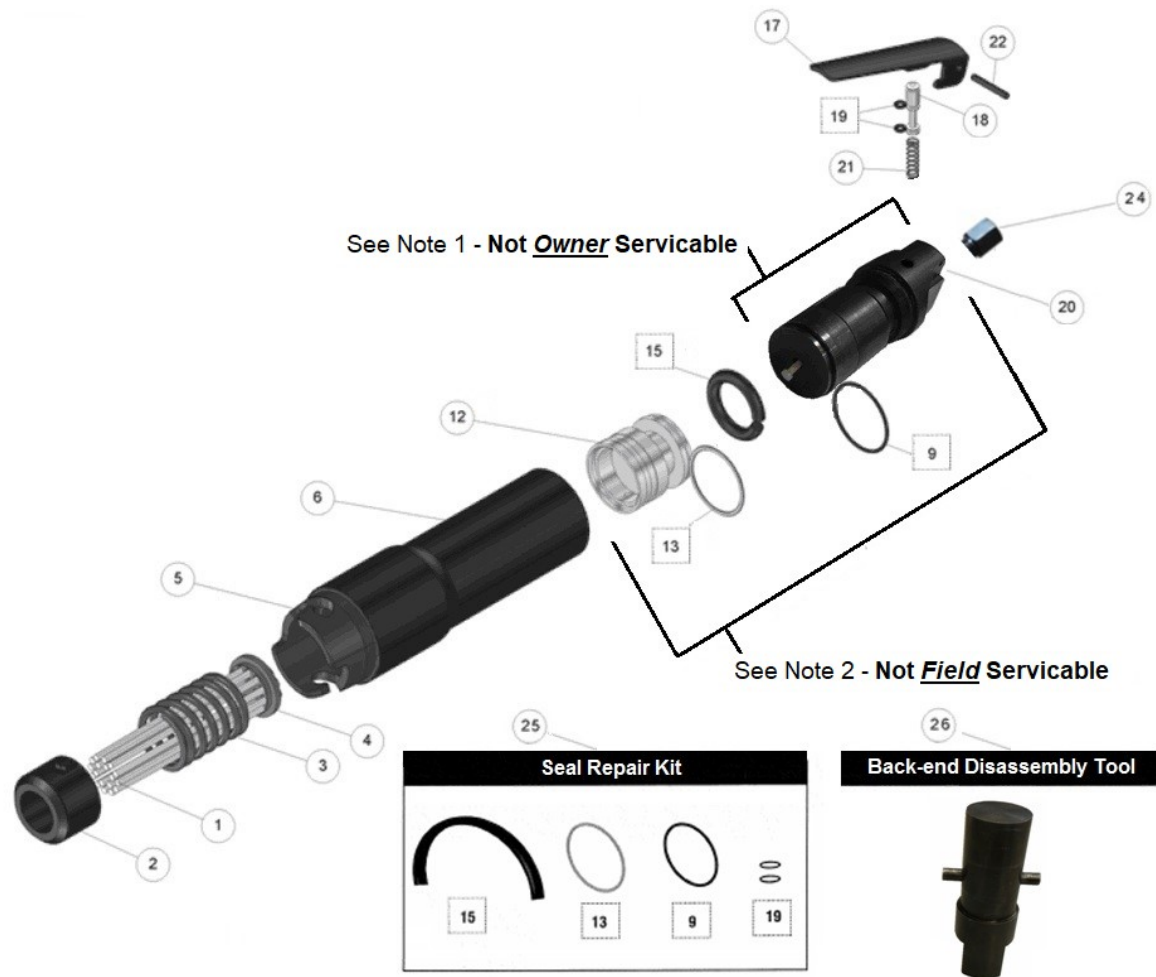
G. Load new needles into needle holder.

H. Re-assemble by reversing procedure.

## 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"><li>• first check that your air source is putting out the required 90 psi at 6 cfm</li><li>• Next check the air supply hose. A ½ 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.</li><li>• Finally, if using a Lubricator, Filter, Evaporator, check to see if the filter is clogged.</li></ul> <p>For lack of lubrication, check to see when the tool was last lubricated. Perform maintenance as necessary.</p>
Other	Contact your Desco representative for assistance.

## CHAPTER 6 – Schematic



**Notes:**

<sup>1</sup>**Back Head Assy (#20) *not owner* serviceable.** Desco factory service required.

<sup>2</sup>**Back-end components are *not field* serviceable.** Requires a vice and a special tool (#26).

Ref	Part	Description
1	130.017	Needles, 5", chisel pt (18)
	130.019	Needles, 5", flat pt (18)
2	550.991102	Front
3	550.991103	Forward Spring
4	550.991104	Needle Holder
5	550.991105	Housing
6	550.991106	Housing Cover
9	550.991109	Seal Ring
12	550.991112	Piston
13	550.991113	Piston Ring

Ref	Part	Description
15	550.991115	Limit Ring
17	550.991117	Lever
18	550.991118	Valve Stem
19	550.991119	O-ring (2)
20	550.991120	Back Head Assy
21	550.991121	Spring
22	550.991122	Pin
24	550.106130	Inlet Adapter, Model 18
25	550.9911	Seal Repair Kit
26	550.994	Back-end Disassembly Tool