



MINI NEEDLE SCALER

Model 96997

SET UP AND OPERATING INSTRUCTIONS



Diagrams within this manual may not be drawn proportionally.

Due to continuing improvements, actual product may differ slightly from the product described herein.

Distributed exclusively by Harbor Freight Tools®.

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Visit our website at: <http://www.harborfreight.com>



**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

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For technical questions or replacement parts, please call 1-800-444-3353.
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SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.

GENERAL SAFETY RULES



WARNING! Read all instructions

Failure to follow all instructions listed below may result in serious injury.

The term “power tool” in all of the warnings listed below refers to your Mini Needle Scaler.

SAVE THESE INSTRUCTIONS

1. Work area safety

- a. Keep work area clean and well lit. *Cluttered or dark areas invite accidents.*
- b. Do not operate the Scaler in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. *Power tools create sparks which may ignite the dust or fumes.*
- c. Keep children and bystanders away while operating a power tool. Distractions can cause you to lose control.

2. Personal safety

- a. Stay alert, watch what you are doing and use common sense when operating the Scaler. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. *A moment of inattention while operating power tools may result in serious personal injury.*
- b. Use safety equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c. Remove any adjusting key or wrench before turning the Scaler on. *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*
- d. Do not overreach. Keep proper footing and balance at all times. *This enables better control of the Scaler in unexpected situations.*
- e. Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts. *Loose clothes, jewelry or long hair can be caught in moving parts.*

3. Power tool use and care

- a. Do not force the Scaler. Use the correct power tool for your application. *The correct power tool will do the job better and safer at the rate for which it was designed.*
- b. Do not use the Scaler if the Throttle Lever (6) does not turn it on and off. *Any power tool that cannot be controlled with the Throttle Lever is dangerous and must be repaired. When connecting the tool to the air supply, keep your hands off the Throttle Lever to avoid accidentally starting the tool.*

- c. Disconnect the Scaler from its compressed air supply source before making any adjustments, changing accessories, or storing the tool. *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
 - d. Store idle power tools out of the reach of children, and do not allow people unfamiliar with the Scaler or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
 - e. Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the Scaler's operation. If damaged, have the power tool repaired before use. *Many accidents are caused by poorly maintained power tools.*
 - f. Use the Scaler in accordance with these instructions and in the manner intended for this particular type of power tool, taking into account the working conditions and the work to be performed. *Use of the Scaler for operations different from those intended could result in a hazardous situation.*
4. **Service**
- a. Have your Scaler serviced by a qualified repair person using only identical replacement parts. *This will ensure that the safety of the power tool is maintained.*

VIBRATION HAZARD

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. To reduce the risk of vibration-related injury:

1. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any medical or physical symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.
2. Do not smoke during use. Nicotine reduces the blood supply to the hands and fingers, increasing the risk of vibration-related injury.
3. Wear suitable gloves to reduce the vibration effects on the user.
4. Use tools with the lowest vibration when there is a choice between different processes.
5. Include vibration-free periods each day of work.

6. Grip tool as lightly as possible (while still keeping safe control of it). Let the tool do the work.
7. To reduce vibration, maintain the tool as explained in this manual. If any abnormal vibration occurs, stop use immediately.

SPECIFIC SAFETY RULES

1. Maintain labels and nameplates on the Scaler. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2. Stay within the maximum air pressure capacity (**90 PSI**). Never operate the Scaler above 90 PSI.
3. Compressed air only. Use clean, dry, regulated, compressed air at 90 PSI. Never use oxygen, carbon dioxide, combustible gases, or any other bottled gas as a power source for this tool.
4. Remove adjusting wrenches. Check that adjusting wrenches are removed from the Scaler and work surface before connecting to a compressed air supply source.
5. Avoid unintentional starting. Prepare to begin work before turning on the tool.
6. **CAUTION!** To avoid injury, keep hands and fingers away from the Needles (16). If both hands are holding the Scaler, your hands and fingers cannot be injured by the Needles.
7. When using a handheld power tool, use both hands on the tool to resist starting torque.
8. Do not leave the tool unattended when it is connected to its compressed air supply. Turn off the tool, and disconnect it from its air supply before leaving.
9. Disconnect air hose and release any built-up air pressure. Never service the Scaler with the air hose attached. Always release any built-up air pressure in the tool (even after disconnecting the air hose).
10. Use clamps (not included) or other practical ways to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.
11. Fire the Needles (16) into an appropriate work surface only. This Needle Scaler is recommended for removing flux, rust, scale, paint, cement, and other residue from hard, durable, irregular surfaces. This tool is not suitable for soft surfaces.
12. Do not activate the Needles (16) too close to the edge of a workpiece. They may split the workpiece and cause it to fly free, causing personal injury.

13. Do not hold the Scaler in any area for more than a few seconds. Damage to the surface may occur.
14. This product is not a toy. Keep it out of reach of children.
15. **WARNING!** The brass components of this product contain lead, a chemical known to the State of California to cause birth defects (or other reproductive harm). (*California Health & Safety Code 25249.5, et seq.*)
16. Some dust created by power sanding, sawing, grinding, drilling, and other construction activities, contains chemicals known (to the State of California) to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
 Lead from lead-based paints
 Crystalline silica from bricks and cement or other masonry products
 Arsenic and chromium from chemically treated lumber
 Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles. (*California Health & Safety Code § 25249.5, et seq.*)
17. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



SAVE THESE INSTRUCTIONS.

SPECIFICATIONS

Maximum Operating Pressure	90 PSI
Air Consumption	4 CFM (Cubic Feet Per Minute)
Air Inlet Size	1/4"-18 NPT
Needle Quantity	12
Blows Per Minute	4,000
Activation Method	Squeeze Type Paddle Lever

UNPACKING

When unpacking, check to make sure the item is intact and undamaged. If any parts are missing or damaged, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

SET UP INSTRUCTIONS



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

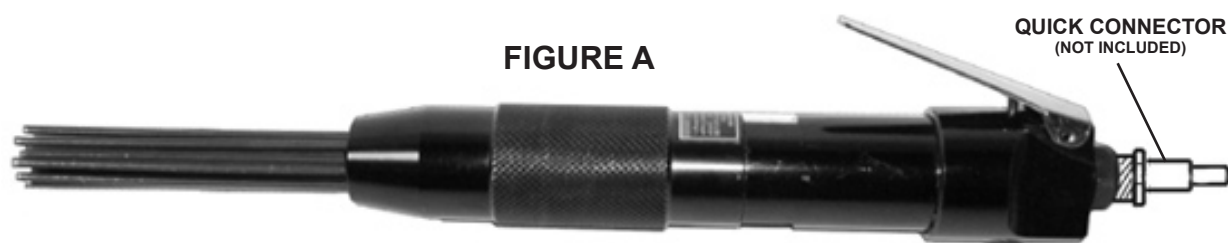
WARNING

Risk of accidental starting; resulting in serious personal injury. Disconnect the Sander from its compressed air source before assembling or making any adjustments to the tool.

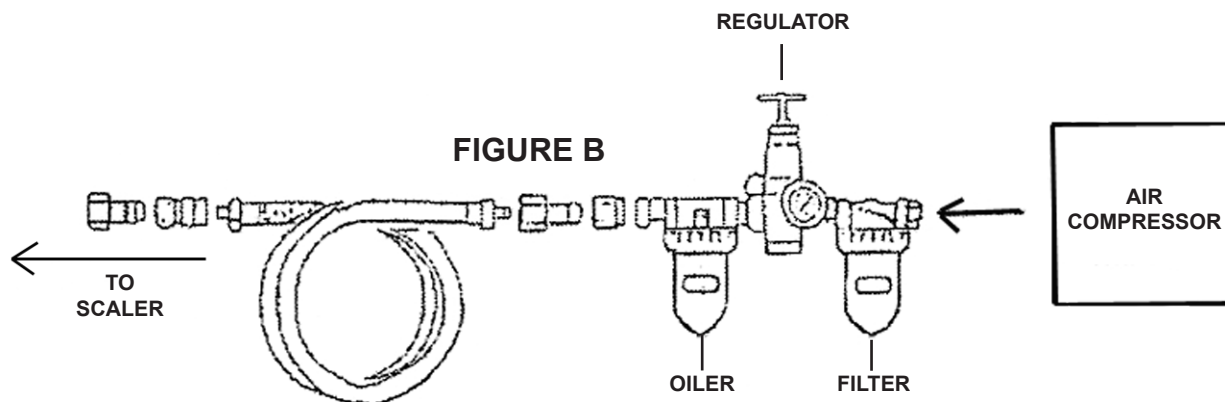
Note: For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

Assembly

1. Prior to using the Sander, the Scaler must have a male Quick Connector (not included) connected to the tool's Air Inlet (20). To do so, wrap about 3" of Pipe Thread Seal Tape (not included) around the threads of the Quick Connector. Then firmly screw on the Quick Connector. **(See Figure A.)**



2. For best tool performance, you should incorporate an oiler, regulator, and in-line water filter as shown in the illustration below. If an oiler is NOT used, it is recommended that you squirt 3 to 4 drops of pneumatic tool oil (not included) into the previously installed Quick Connector of the tool before each use. **(See Figure B.)**




3. Connect a compressed air supply hose (not included) to the previously installed Quick Connector. Then turn on the air compressor, and set its regulator to **90 PSI. Do not exceed 90 PSI. (See Figure C.)**



OPERATING INSTRUCTIONS



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

1.  **CAUTION!** Prior to using the Scaler, make sure to wear ANSI-approved safety impact goggles, dust mask or respirator, and heavy duty work gloves.
2. Use clamps (not included) or other practical ways to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.
3. Grip the Scaler with both hands. Make sure the Needles (16) are not touching any surface before you turn on the tool. Then squeeze the Throttle Lever (6) and allow the Needles (16) to vibrate to their fullest speed. **(See Figure D.)**
4. Place the vibrating Needles (16) on the surface residue. Then, move the Scaler around the area to remove the residue. To increase the intensity of the vibrating Needles, squeeze the Throttle Lever (6) harder. To decrease the intensity of the vibrating Needles, relax pressure on the Throttle Lever. **(See Figure D.)**
5. Keep a light pressure on the Scaler when in use. Do not apply heavy pressure, as damage to the work surface may result.



6. When finished using the Scaler, release pressure on the Throttle Lever (6). Turn off the air compressor. Squeeze the Throttle Lever again to release any remaining compressed air in the Scaler. Then disconnect the air hose from the tool. **(See Figure D.)**
7. Make sure to store the Scaler in a clean, dry, safe location out of reach of children and other unauthorized people.

MAINTENANCE AND SERVICING

⚠️ WARNING

Risk of serious personal injury from accidental starting. Disconnect the Scaler from its compressed air supply before performing any inspection, maintenance, or cleaning procedures.

Damaged equipment can fail, causing serious personal injury. Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

1. **BEFORE EACH USE**, inspect the general condition of the Scaler. Check for loose parts, misalignment or binding of moving parts, cracked or broken parts, damaged hose, and any other condition that may affect its safe operation.
2. **TO REPLACE THE NEEDLES:**
 - Unscrew and remove the Needle Tube (19) from the Scaler. Then remove the Needle Holder Spring (18), and Needle Holder (17) with its Needles (16).
 - Remove the bent and broken Needles (16) from the Needle Holder (17), and replace with new Needles.
 - Re-install the Needle Holder (17) with its new Needles (16). Re-install the Needle Holder Spring (18). Then screw the Needle Tube (19) firmly back onto the Scaler.
 - Once the Needles (16) are replaced, test the operation of the tool. Make sure the replaced Needles are properly operating before attempting to work on a workpiece. **(See Assy. Diagram.)**
3. **TO CLEAN THE EXTERIOR OF THE SCALER**, wipe with a clean, damp cloth using a mild detergent. Do not use solvents. Do not immerse the tool in liquid.
4. **WHEN STORING**, keep the Scaler in a clean, dry, safe location out of reach of children and other unauthorized people.
5. **CAUTION:** All maintenance, service, and repairs not mentioned in this manual must only be performed by a qualified service technician.

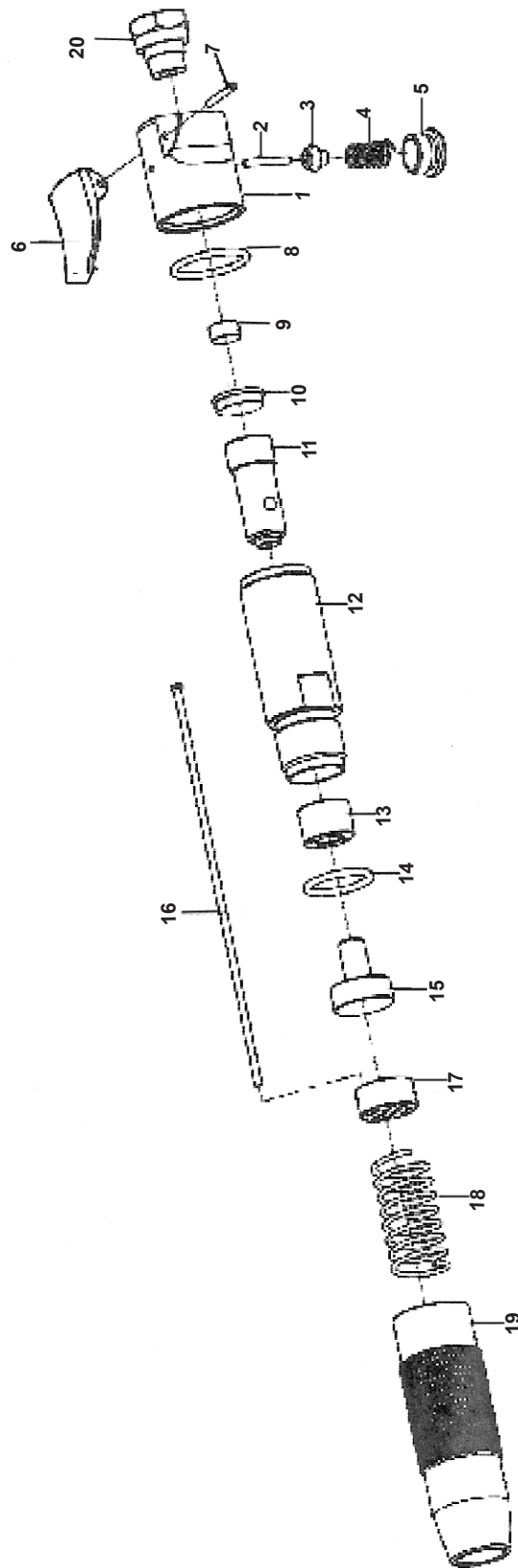
TROUBLESHOOTING

Problem	Possible Solution
Little or no vibration of Needles.	<ol style="list-style-type: none"> 1. Squeeze harder on Throttle Lever to intensify vibration. 2. Make sure air compressor is set at 90 PSI. 3. Check for air leaks in air hose and all other compressed air connections. 4. Check for bent or broken Needles. If necessary, replace Needles. 5. Make sure Needle Tube is screwed on securely. 6. Remove Quick Connector. Check Air Filter in Rear Housing for excessive debris build-up. If necessary, clean or replace Air Filter.
Scaler will not remove residue from workpiece, even after repeated attempts.	<ol style="list-style-type: none"> 1. Do not continue using Scaler to avoid damaging workpiece. Use another method to remove residue.

PARTS LIST

Part	Description	Qty.	Part	Description	Qty.
1	Rear Housing	1	11	Piston	1
2	Valve Stem	1	12	Cylinder	1
3	Valve Seat	1	13	Chisel Bushing	1
4	Spring	1	14	O-Ring	1
5	Throttle Cap	1	15	Needle Driver	1
6	Throttle Paddle Lever	1	16	Needle	12
7	Spring Pin	1	17	Needle Holder	1
8	O-Ring	1	18	Needle Holder Spring	1
9	Rubber Cushion	1	19	Needle Tube	1
10	Valve Cap	1	20	Air Inlet	1

ASSEMBLY DIAGRAM



90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. This warranty is expressly in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

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