




## 3:1 High Ratio Oil Pump W. Extn. Kit

### OWNER'S MANUAL



 **WARNING:** Read carefully and understand all **INSTRUCTIONS** before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item # 109097

Thank you very much for choosing a NORTHERN TOOL + EQUIPMENT CO., INC. Product! For future reference, please complete the owner's record below:

Model: \_\_\_\_\_ Purchase Date: \_\_\_\_\_

Save the receipt, warranty and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.

This machine is designed for certain applications only. Northern Tool + Equipment cannot be responsible for issues arising from modification. We strongly recommend this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted Northern Tool + Equipment to determine if it can or should be performed on the product.

For technical questions please call **1-800-222-5381**.

## INTENDED USE

Oil pumps can be used to transfer lubrication oil, waste oil and antifreeze liquids.

This manual is applicable to the following pump only. Please confirm your pump is included.

## TECHNICAL SPECIFICATIONS

|                                 |   |
|---------------------------------|---|
| Item No.                        | 109097  |
| Compression Ratio               | 3:1   |
| Operating Pressure(bar/psi)     | 5-8 / 70-115                                    |
| Max. fluid Pressure (bar/psi)   | 24 / 348  |
| Air Consumption (L/min M3/hour) | 140 / 5.0                                       |
| Capacity (L/min Gallon/min)     | 28 / 7.5  |
| Tube Diameter (mm/inch)         | 42 / 1.65                                       |
| Suction Tube Length (mm/inch)   | 270 / 10.6, Wall installed / Extension transfer |
| Air Inlet Connection            | 1/4" quick plug / 1/4" NPT female               |
| Oil delivery Connection         | Male 3/4"                                       |
| Max. Viscosity Oil Delivered    | SAE 150   |
| Temperature Oil Delivered       | -10~50°C  |
| Noise Level (dB)                | 82  |

## General Safety Regulations



**WARNING: Read and understand all instructions.** Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.



**WARNING: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could 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

## WORK AREA

- **Keep work area clean**, free of clutter and well lit. Cluttered and dark work areas can cause accidents.
- **Do not use your tool where there is a risk of causing a fire or an explosion**; e.g. in the presence of flammable liquids, gasses, or dust. Power tools create sparks, which may ignite the dust or fumes.
- **Keep children and bystanders** away while operating a power tool. Distractions can cause you to lose control, so visitors should remain at a safe distance from the work area.
- **Be aware of all power lines, electrical circuits**, water pipes and other mechanical hazards in your work area, particularly those hazards below the work surface hidden from the operator's view that may be unintentionally contacted and may cause personal harm or property damage.
- **Be alert of your surroundings**. Using power tools in confined work areas may put you dangerously close to cutting tools and rotating parts.

## PERSONAL SAFETY

- **Stay alert**, watch what you are doing and use common sense when operating a power tool. 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.
- **Dress properly**. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts. Air vents often cover moving parts and should be avoided.
- **Use safety apparel and equipment**. Use safety goggles or safety glasses with side shields which comply with current national standards, or when needed, a face shield. Use as dust mask in dusty work conditions. This applies to all persons in the work area. Also use non-skid safety shoes, hardhat, gloves, dust collection systems, and hearing protection when appropriate.
- **Avoid accidental starting**. Ensure the switch is in the off position before plugging tool into power outlet. In the event of a power failure, while a tool is being used, turn the switch off to prevent surprise starting when power is restored.
- **Do not overreach**. Keep proper footing and balance at all times.
- **Remove adjusting keys or wrenches** before connecting to the power supply or turning on the tool. A wrench or key that is left attached to a rotating part of the tool may result in personal injury.

## PNEUMATIC TOOL USE AND CARE

- **Never use a tool** with a malfunctioning switch. Any power tool that cannot be controlled with the switch is dangerous and must be repaired by an authorized service representative before using.
- **Check for misalignment** or binding of moving parts, breakage of parts, damaged air hose (not included) 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.
- **Compressed air only**. Only use clean, dry and regulated compressed air at no more than 80–95 PSI to power this tool. Never use oxygen, carbon dioxide or any other bottled gas as a

power source for this tool.

- **Use proper size and type** air pressure line and fittings. The recommended air line for this tool is 1/4", delivering no more than 115PSI. Recommended air inlet size is 1/4".
- **Use air hoses rated** for safe operation of the tool. Air hoses rated for a maximum of 140PSI or greater must be used with this tool.
- **Make sure the hose** is free of obstructions or snags. Entangled hoses can cause loss of balance or footing.

## **TOOL USE and PERSONAL SAFETY**

### **When the pump is connected to the compressed air supply:**

1. The compressed air must be filtered to avoid dust and moisture into pump
2. The max compressed air pressure must not exceed 0.8Mpa/120PSI (recommended air pressure is 80-95 PSI).
3. To deliver oil, press the knob on the delivery pistol; delivery stops when the knob is released but the whole system remains under pressure
4. Position the pistol so that the circuit can't open accidentally. Otherwise oil could leak onto the ground.
5. Never point the pistol at people or object.
6. Always cut off the air supply after use so that oil can't leak out.
7. Use only original spare parts in case the pump has to be repaired or its components have to be replaced
8. Empty all the oil from the pump in case it has to be disposed of
9. When not in use, turn off compressed air to stop pump
10. Do not use the pump near open flames. Do not smoke during this operation
11. Wear oil-proof gloves
12. Do not throw the oil away. Used oil has to be disposed of according to national environmental regulations
13. The pumps can be used only to deliver lubricants, used oil or antifreeze liquids. Do not use the pump for any other substance

## **OPERATION**

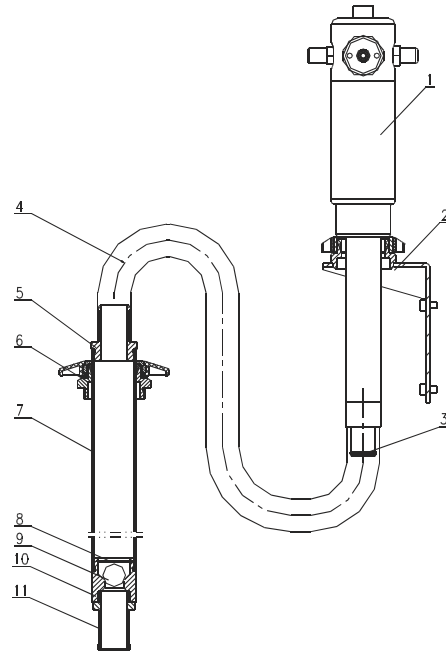
### **Directly Fitted Pump into the Drum**

1. Insert the suction tube of pump into the drum and secure with ring nut, suitable for commercial drums with 57 diameter hole and threading 2" NPT.
2. Fit an oil delivery tube for oil outlet of the air operated pump using only high quality tubes (normally 3/4", according to DIN-SAE norms), by means of 3/4" NPT threading fitting.
3. Oil delivery pistol: Connect delivery tube with delivery pistol using suitable pipe fittings, and point the pistol at right place.
4. Air inlet connection is 1/4" quick plug (or 1/4" NPT female) in all versions. Compressed air connection (to be supplied by the customer) should be done using suitable tube.
5. A pressure regulator to keep the pump's working pressure at the best possible level (72-116 max PSI) between the pump and the compressed air line.
6. A cut-off switch can enable the operator to stop the pump at any given moment by cutting the air supply off between the pump and the compressed air line.
7. Switch on all switches.

## Wall Installed

### Part List

| Code | Name                  | Quantity |
|------|-----------------------|----------|
| 1    | Oil pump              | 1        |
| 2    | Wall bracket          | 1        |
| 3    | Pump adapter          | 1        |
| 4    | Flexible suction hose | 1        |
| 5    | Suction hose adapter  | 1        |
| 6    | Bung adapter          | 1        |
| 7    | Rigid suction tube    | 1        |
| 8    | Spring circlip        | 1        |
| 9    | Ball                  | 1        |
| 10   | Valve seat            | 1        |
| 11   | Filter                | 1        |



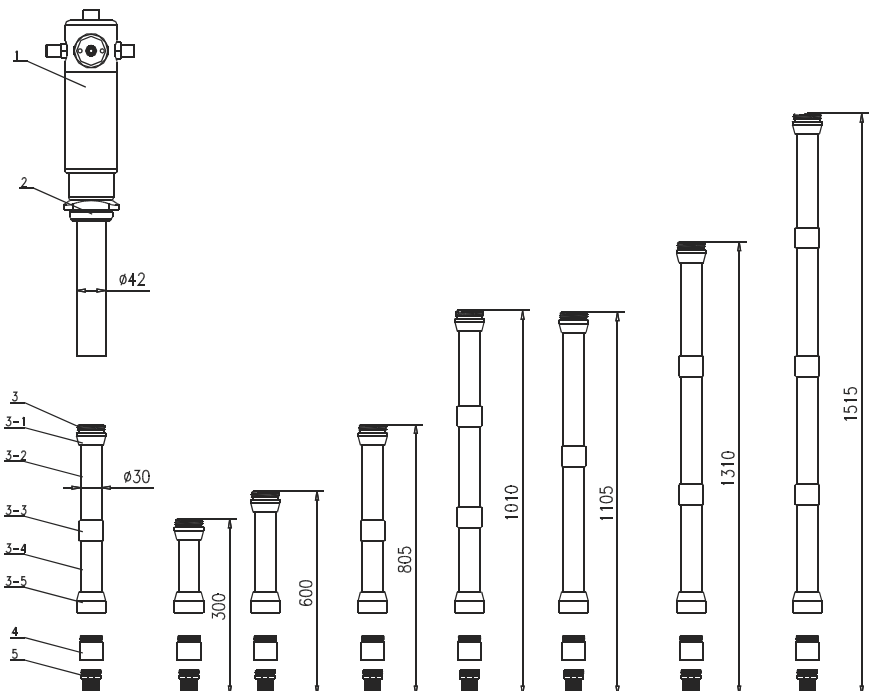
### Proceed As Follows

1. Secure the bracket to the wall using the dowels at about 47" height appropriate for the tank's dimensions. Make sure that the wall is solid and thick enough for the dowels. Do not interfere with hydraulic tubes or electric lines.
2. Secure the pump to the bracket 2.
3. Connect the flexible suction tube 4 to the pump using the clamp provided.
4. Connect the rigid suction 7 to the end of the flexible suction tube 4 using the elastic clamp provided.
5. Put the bung adapter 6 into the drum hole.
6. Put the rigid suction tube 7 into the pump and secure it in place.

## Extension Transfer

### Part List

| Code | Name                 | Quantity |
|------|----------------------|----------|
| 1    | Oil pump             | 1        |
| 2    | Bung adapter         | 1        |
| 3-1  | Top connection       | 1        |
| 3-2  | Extension 500mm tube | 1        |
| 3-3  | Extension sleeve     | 1        |
| 3-4  | Extension 200mm tube | 1        |
| 3-5  | Foot connection      | 1        |
| 4    | Foot valve           | 1        |
| 5    | Filter               | 1        |

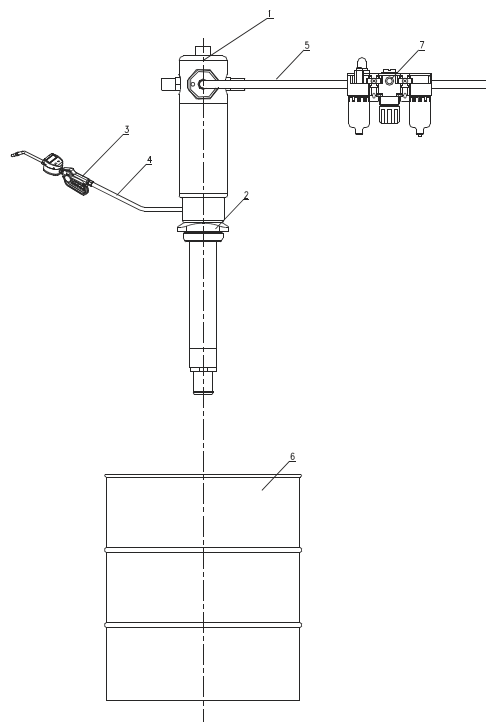


**Proceed as follows**

1. Depending on the length of the suction tube the desired extension length. Can be realized by using the modular extension elements (See the examples given above).
2. Example of possible application to pump with drum or rigid suction tube for obtaining personalized lengths according to needs.
3. Remove filter and foot valve from the stub pump, screw the extension tube on (W/top connection), then screw filter and foot valve on the extension tube (foot connection end!).

**Connect the Pump with Other Accessories:**

| Code                 | Main Body                                 |
|----------------------|---|
| 1                    | Oil pump                                  |
| 2                    | Bung adapter                              |
| Code                 | Other Accessories (Not included)          |
| 3                    | Oil pistol                                |
| 4                    | Hose with fitting                         |
| 5                    | Air hose with quick coupling              |
| 6                    | Drum                                      |
| 7<br>(7-1, 7-2, 7-3) | Filter, pressure regulator and lubricator |



**MAINTENANCE**



**WARNING:** Make sure this tool is disconnected from its air supply before attempting any maintenance, cleaning, or inspection.

**Pumps are delivered in appropriate carton boxes. Packaging material should be properly disposed.**

**Handling and storage of the new pump do not require any special procedures.**

**However after the pump has been used, empty the used oil in the suction tube into an appropriate container. This is done by overturning the pump.**

The dust in compressed air can slow down and even block the motor cylinder. The following steps may prevent this from happening:

- 1) Add 2 ounces of approved lubricating oil to the air inlet hole weekly, operate the pump for several minutes after having lubricated it.
- 2) Turn on the pump for several minutes until moving parts are fully lubricated.
- 3) You may repeat the above operation if necessary.
- 4) The above steps should be carried out on a weekly basis, at minimum.

For the pumps that are attached with compressed air treatment equipment, please empty the water retained in the reservoir of the filter-purger frequently.

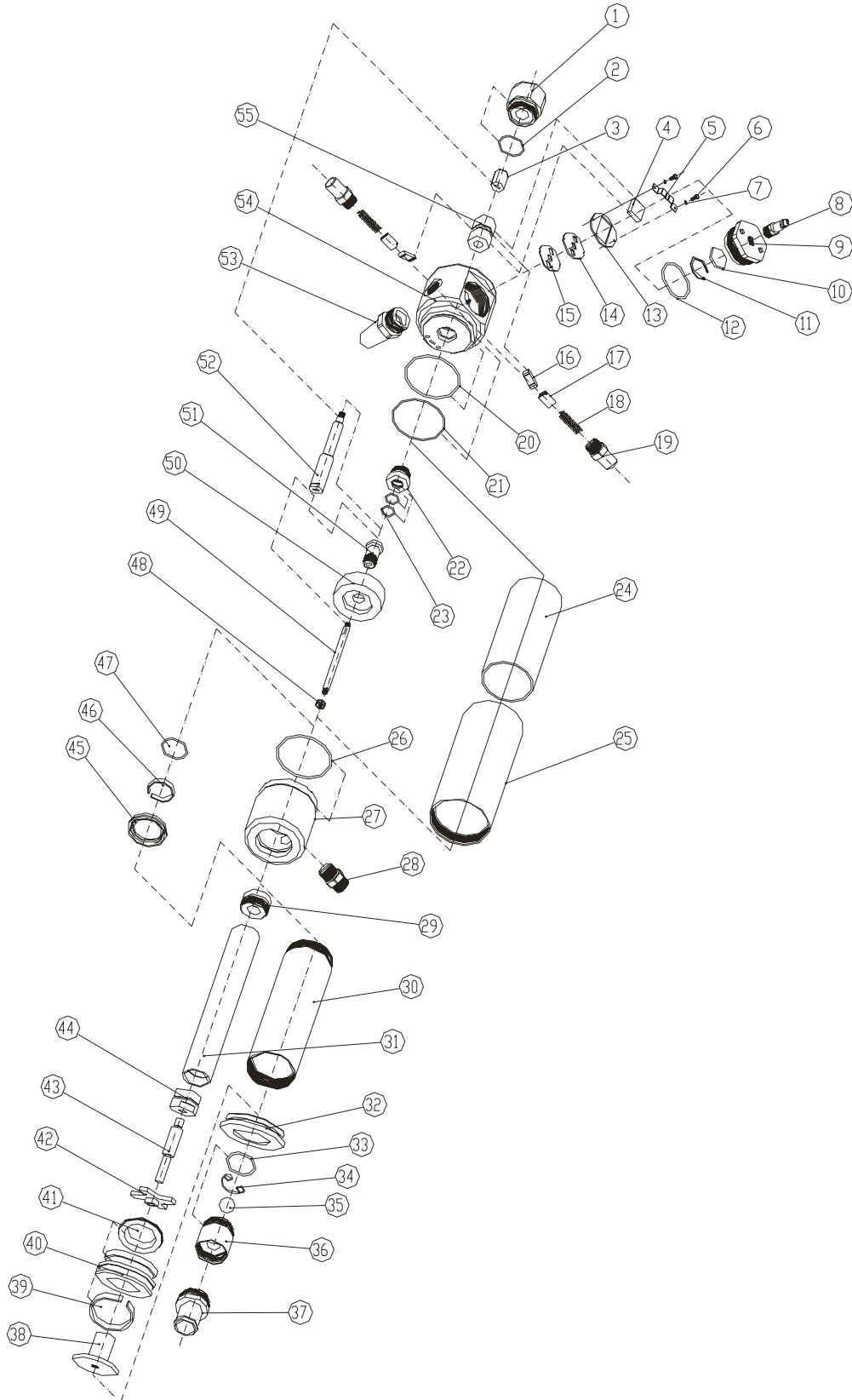
For the pumps that are attached with a lubricator, please pay close attention to the lubricator's oil level and refill with SAE 20, SAE 30 or antifreeze oil for extreme conditions when necessary.

**Note:**

The user should perform only routine maintenance operations (such as filters, silencers, cleaning...) with the pump in order not to damage it or compromise its safety.

Contact our sales or service center when the pump needs further maintenance.

**DIAGRAM & PARTS LIST**





| Part # | Description            | Quantity |
|--------|------------------------|----------|
| 1      | Air motor cover        | 1        |
| 2      | O-ring                 | 1        |
| 3      | Air motor shell inside | 1        |
| 4      | Slider                 | 1        |
| 5      | Press piece            | 1        |
| 6      | Screw                  | 2        |
| 7      | Small circlip          | 1        |
| 8      | Quick coupling         | 1        |
| 9      | Air center cover       | 1        |
| 10     | Silencer               | 1        |
| 11     | Circlip                | 1        |
| 12     | O-ring                 | 1        |
| 13     | Securing washer        | 1        |
| 14     | Gasket                 | 1        |
| 15     | Soft gasket            | 1        |
| 16     | Trip shoe guide        | 2        |
| 17     | Spring seat            | 2        |
| 18     | Spring                 | 2        |
| 19     | Spring shell           | 2        |
| 20     | O-ring                 | 1        |
| 21     | O-ring                 | 1        |
| 22     | Bracket                | 1        |
| 23     | O-ring                 | 2        |
| 24     | Piston cover           | 1        |
| 25     | Cut cover              | 1        |
| 26     | O-ring                 | 1        |
| 27     | Side cover             | 1        |
| 28     | Outlet                 | 1        |

| Part # | Description          | Quantity |
|--------|----------------------|----------|
| 29     | Piston connect cover | 1        |
| 30     | Suction tube         | 1        |
| 31     | Piston shaft         | 1        |
| 32     | Connector            | 1        |
| 33     | O-ring               | 1        |
| 34     | Spring circlip       | 1        |
| 35     | Ball                 | 1        |
| 36     | Valve seat           | 1        |
| 37     | Filter               | 1        |
| 38     | Nut                  | 2        |
| 39     | U seal               | 1        |
| 40     | Small piston         | 1        |
| 41     | O-ring               | 1        |
| 42     | Retainer             | 1        |
| 43     | Connector shaft      | 1        |
| 44     | Piston stem          | 1        |
| 45     | O-ring               | 1        |
| 46     | U seal               | 1        |
| 47     | O-ring               | 1        |
| 48     | Nut                  | 1        |
| 49     | Shaft                | 1        |
| 50     | Piston               | 1        |
| 51     | Screw                | 1        |
| 52     | Bracket              | 1        |
| 53     | Silencer             | 1        |
| 54     | Air control center   | 1        |
| 55     | Slider               | 1        |

For replacement parts and technical questions, please call **1-800-222-5381**.

## Troubleshooting

| Problem  | Possible Causes  | Solutions   |
|--|--|---|
| The pump continues to operate after the gun trigger has been released  | <ol style="list-style-type: none"> <li>1. This is an oil leak at some point of the circuit.</li> <li>2. Valve sets (part No.24 and 208, 209, 210, 205, 206) close incorrectly due to dirt or wearing.</li> </ol>                               | <ol style="list-style-type: none"> <li>1. Check and tighten unions. Repair the leak.</li> <li>2. Substitute damaged elements.</li> </ol>            |
| Reduction of the oil delivery or reduced pressure in the oil delivery. | <ol style="list-style-type: none"> <li>1. Silencer (105) dirty.</li> <li>2. Blocked at some point of the oil circuit.</li> <li>3. Ball valve set (31, 108) closes incorrectly due to dirt or wearing.</li> </ol>                               | <ol style="list-style-type: none"> <li>1. Clean or recharge silencer.</li> <li>2. Use clean oil.</li> <li>3. Substitute damaged elements</li> </ol> |
| Air loss through the air exhaust                                       | <ol style="list-style-type: none"> <li>1. The sliding valve (7) does not close properly.</li> <li>2. Broken press piece (6).</li> <li>3. Damaged O-ring (203,204).</li> <li>4. Damaged piston (19).</li> <li>5. Broken spring (12).</li> </ol> | <ol style="list-style-type: none"> <li>1. Disassemble and clean. Substitute in case of damage.</li> <li>2. Substitute damaged elements.</li> </ol>  |
| Oil leaks through the air exhaust                                      | Seal set (208, 210) damaged  | Substitute damaged elements   |

**If the pump has anything wrong, please contact dealer or their technical support.  
We don't recommend customers repair the pump themselves.**

## **WARNING**

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 and other masonry products, and
- 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.



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