



Model 5978

1/8" (3 mm) Pencil Air Die Grinder

Form # Z568
Date 9-99/A



Operator Instructions Includes – Foreseen Use, Work Stations, Putting Into Service, Operating, Dismantling, Assembly and Safety Rules.		Important Read these instructions carefully before installing, operating, servicing or repairing this tool. Keep these instructions in a safe accessible place.	
Manufacturer/Supplier Sioux Tools Inc. 2901 Floyd Boulevard P.O. Box 507 Sioux City, IA 51102 U.S.A. Tel No. 712-252-0525 Fax No. 712-252-4267		Product Type 1/8" (3 mm) Pencil Air Die Grinder	RPM 54,000 Cycles Per Min.
		Model No/Nos 5978	Serial No.

Product Net Weight 0.66 lbs 0.30 Kg	Recommended Use Of Balancer Or Support NO	Recommended Hose Bore Size – Minimum 1/4 Ins 8 M/M	Recommended Max. Hose Length 30 Ft 10 M
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Air Pressure			
Recommended Working Maximum	6.2	bar	90 PSI
	6.2	bar	90 PSI

SAFETY MESSAGES Personal Safety Equipment Use – Safety Glasses YES Use – Safety Gloves YES Use – Safety Boots Use – Breathing Masks YES Use – Ear Protectors YES		WARNING Always Read Instructions Before Using Power Tools Always Wear Safety Goggles Wear Hearing Protection Avoid Prolonged Exposure To Vibration
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Safety rules when using a 5978 Die Grinder

- Use accessories rated at least 54,000 RPM.
- Prolonged exposure to vibration may cause injury.
- Read all instructions before using this tool. All operators must be fully trained in its use and aware of these safety rules.
- Do not exceed the maximum working air pressure.
- Use personal protection equipment as recommended.
- Use only compressed air at the recommended conditions.
- If the tool appears to malfunction, remove from use immediately and arrange for service and repair. If it is not practical to remove tool from service, then shut off the air supply to the tool and write or have written a warning note and attach it to the tool.
- If tool is to be used with a balancer or other suspension device, ensure that the tool is firmly attached to the suspension/support device.
- When operating the tool, always keep the body and particularly the hands away from the working attachment fixed to the tool.
- The tool is not electrically insulated. Never use the tool if there is any chance of coming into contact with live electricity.

- Always when using the tool, adopt a firm footing and/or position and grip the tool sufficiently only to overcome any reaction forces that may result from the tool doing work. Do not overgrip.
- Use only correct spare parts for maintenance and repair. Do not improvise or make temporary repairs. Major servicing and repairs should only be carried out by persons trained to do so.
- Do not lock, tape, wire, etc. the 'On/Off' valve in 'On' position.
- Always shut off the air supply to the tool and open the air regulator to exhaust the air from the feed hose before fitting, removing or adjusting the working attachment fitted to the tool.
- Before using the tool, make sure that a shut off device

Recommended Air Supply System **Figure 1**

has been fitted to the air supply line and the position is known and easily accessible so that the air supply to the tool can be shut off in an emergency.

- Check hose and fittings regularly for wear.
- Take care against entanglement of the moving parts of the tool with clothing, hair, ties, cleaning rags, rings, jewelry, watches, bracelets, etc. This could cause the body or parts of the body to be drawn towards and in contact with the moving parts of the tool and could be very dangerous.
- It is expected that users will adopt safe working practices and observe all local, regional and country legal requirements when installing, using or maintaining the tool.
- Take care that the exhaust air does not point towards any other person or material or substance that could be contaminated by oil droplets. When first lubricating a tool or if the tool exhaust has a high oil content, do not allow the exhaust air to come near very hot surfaces or flames.
- Never lay the tool down until the working attachment has stopped moving.
- When the tool is not in use, shut off the air supply and open the air regulator to drain the supply line. If the tool is not to be used for a period of time, first lubricate, disconnect from air supply and store in a dry average room temperature environment.
- If the tool is passed from one user to a new or inexperienced user, make sure these instructions are passed with the tool.
- Do not remove any manufacturer fitted safety devices where fitted, i.e., wheel guards, safety trigger, speed governors, etc.
- Wherever possible, secure workpiece with clamps, a vise, etc. to make it rigid so it does not move during the work operation. Keep good balance at all times. Do not stretch or overreach.
- Try to match the tool to the work operation. Do not use a tool that is too light or heavy for the work operation. If in doubt, seek advice.
- In general terms, this tool is not suitable for underwater use or use in explosive environments — seek advice from manufacturer.
- Try to make sure that the work area is clear to enable the work task to be performed safely. If practical and possible, try to clear unnecessary obstructions before starting work.
- Always use air hose and couplings with minimum working pressure ratings at least 1 1/2 times the maximum working pressure rating of the tool.

Foreseen Use Of The Tool – 5978

This die grinder is primarily designed for use with bonded abrasive mounted point grinding wheels. It may also be used with steel rotary files and carbide burrs provided their speed rating matches or exceeds the speed of the grinder.

This tool should not be fitted with cutting off wheels, saw blades, drill bits, etc. If there is any doubt about the correct use of this product contact your supplier for advice.

Also, make sure that the shank size of the attachment to be driven matches the collet size fitted in the grinder and that the maximum allowed running speed of the attachment exceeds that marked on the grinder.

There are special rules governing the use of bonded abrasive mounted point grinding wheels – for details see section "Operating".

Work Stations

The tool should only be used as a handheld, hand operated tool. It is always recommended that the tool is used when standing on a solid floor. It can be used in other positions, but before any such use, the operator must be in a secure position having a firm grip and footing and be aware of the extra safety precautions that must be observed when using grinding machines.

Putting Into Service

Air Supply

Use a clean lubricated air supply that will give a measured air pressure at the tool of 90 p.s.i./6.2 bar when the tool is running with the air regulator fully open. Use recommended hose size and length. It is recommended that the tool is connected to the air supply as shown in figure 1. Do not connect the tool to the air line system without incorporating an easy to reach and operate air shut off valve. The air supply should be lubricated. It is strongly recommended that an air filter, regulator, lubricator (FRL) is used as shown in Figure 1 as this will supply clean, lubricated air at the correct pressure to the tool. Details of such equipment can be obtained from your supplier. If such equipment is not used, then the tool should be lubricated by shutting off the air supply to the tool, depressurizing the line by opening the air regulator on the tool. Disconnect the air line and pour into the hose adaptor a teaspoonful (5ml) of a suitable pneumatic motor lubricating oil preferably incorporating a rust inhibitor. Reconnect tool to air supply and run tool slowly for a few seconds to allow air to circulate the oil. If tool is used frequently, lubricate on daily basis and if tool starts to slow or lose power.

It is recommended that the air pressure at the tool while the tool is running is 90 psi/6.2 bar.

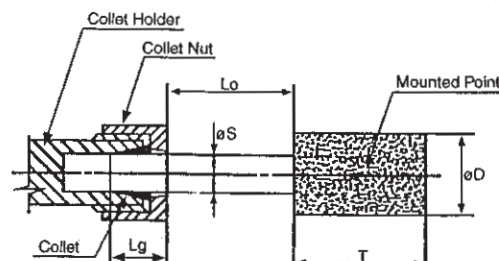
Operating

Select a suitable mounted point that has a free running speed higher than the maximum running speed marked on the tool.

Always match correctly the shank size to the collet size. If uncertain, have parts measured by a competent person.

Push the shank as far as possible into the collet and tighten the collet nut using the spanners provided on the collet nut and the output spindle. The shank of the mounted point may be pulled toward from the maximum insertion length, but always ensure a maximum gripping length of not less than 10mm – see Figure 2.

Be aware that the allowed running speed of the mounted point is lowered because of an increase in the length of the shank between the end of the collet and the body of the mounted point. This distance is shown in Figure 2, as "Lo" and is called the overhang.



D = diameter of mounted point S = diameter of shank
T = length of mounted point Lg = gripping length
Lo = overhang

Figure 2. Gripping length of collet and chuck

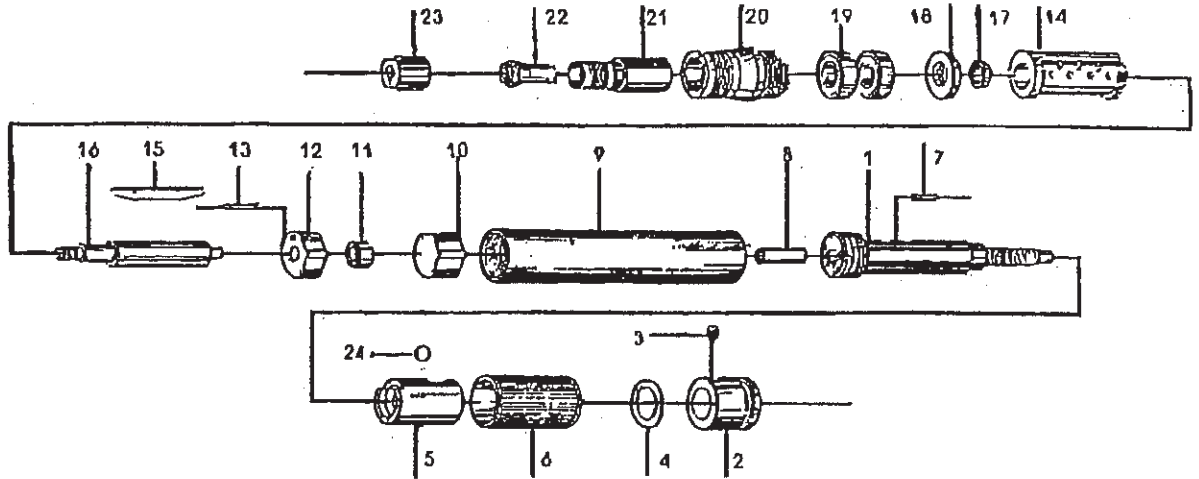
The information with respect to mounted point, permissible running speed and reduction in running speed due to an increase in overhang is available from the supplier of the mounted points.

If the increase in overhang for access reasons takes the permissible running speed of the mounted point below the free running speed of the grinder, select a smaller diameter mounted point.

The fitting of the mounted point should be done by a trained operator. When first starting the grinder with a new point or wheel



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Ref. No.	Part No.	Description
1	505902	Hose Plug
2	505903	Rear End Holder
3	505904	Screw
4	505905	O-Ring (2)
5	505906	Air Regulator
6	505907	Sliding Knob
7	505908	Pin
8	505909	Intake Steel Tube
9	505910	Sleeve
10	505911	Intake Plate
11	505912	Ball Bearing
12	505913	Bearing Plate
13	505914	Pin
14	505915	Cylinder

Ref. No.	Part No.	Description
15	505916	Fiber Vanes (3)
16	505917	Rotor
17	505918	Lateral Disc
18	505919	Spacer
19	505920	Ball Bearing (2)
20	505921	Collet Foundation
21	505922	Front Cover
22	505923	Collet (3 mm)
23	505924	Clamping Nut
24	505925	O-Ring
Not Shown	505931	Air Hose
	505932	Hose Protector
	505933	Inlet Bushing
	505935	Spanner Wrench (2)

fitted, the grinder should not be near other persons and be held in a protected area. i.e. under a bench, and run for a few seconds. This will protect personnel from possible effects of damage to the mounted point or wheel before it is fitted to the grinder i.e. wheel breakage.

Always use eye protection and wear protective gloves if there are sharp edges in the work area. The tool and the grinding process can create a noise level such that the use of ear protectors is advised.

If the grinding process creates a dust, then use a suitable breathing mask. Check that the material being worked will not cause harmful dust or fumes. If this is so, then special breathing masks may be required.

If the grinder vibrates when first fitting a mounted point or during operation, remove from service immediately and correct fault before continuing to use.

Do not apply excessive pressure as this will reduce the cutting efficiency and can bend the shank of the mounted point causing vibration and the possibility of breakage. Apply light loads to allow the wheel to cut.

Handle the grinder with care. If the grinder is dropped, carefully check the mounted point for damage, i.e. cracks, chipping, and start for the first time as for fitting a new wheel, i.e. under a bench.

Never exceed the maximum air pressure. If there is this possibility, always use this grinder with a pressure reducing valve fitted in the supply line. Your supplier will advise of suitable equipment.

This grinder is fitted with a speed regulator and the speed may be reduced by rotating air regulator (6) counterclockwise toward the OFF position. When making speed checks, always rotate the air regulator to the position that gives the highest maximum speed, which will be the farthest point the air regulator will move in a clockwise motion.

Notes

Dismantling & Assembly Instructions

Disconnect tool from air supply.

First, using one of the spanner wrenches supplied, unscrew and remove the extended air supply hose along with the hose protector. Then, using the appropriate sized hex wrench, loosen the hex screw (3) one complete turn and slide off the rear end holder (2). Slide off the air regulator assembly, complete with O-rings (4, 24), air regulator (5) and sliding knob (6). O-rings (4, 24) may then be removed from inside air regulator (5) and by pushing down on air regulator (5), it may be removed from sliding knob (6). Unscrew air inlet assembly, consisting of hose plug (1), pin (7) and intake steel tube (8) from housing sleeve (9). Pin (7) and intake steel tube (8) may then be removed from hose plug (1).

Using spanner wrenches, unscrew clamping nut (23) and pull out collet (22). Unscrew collet foundation (20) from housing sleeve (9). The complete motor assembly can now be removed from housing sleeve (9). To disassemble motor assembly, enter from intake plate (10) and pull out pin (13). Remove ball bearing (11) and bearing plate (12) from rotor (16). Then, fiber vanes (15) and cylinder (14) can be separated easily. Unscrew rotor (16) from front cover (21) and remove ball bearings (19), spacer (18) and lateral disc (17).

Reassembly

Clean all parts and examine for wear, replacing any worn or damaged parts. Use only replacement parts obtained from the manufacturer or an authorized distributor. Lightly coat all parts with a suitable pneumatic tool lubricating oil and assemble tool in reverse order.

Operation Specification	
Average Air Consumption	4.2 cfm (30 scfm)
Air Inlet Thread	1/4-18NPT
Overall Length	5.3" (135 mm)
at 90 PSIG/6.2 bar	