SANDER INSTRUCTION MANUAL
115 mm - 125 mm (4½ in - 5 in)
12,000 RPM

Important Safety Information

Please read, understand and follow all safety information contained in these instructions prior to the use of this tool.
Retain these instructions for future reference.

Intended Use

This pneumatic tool is intended for use in industrial locations, and used only by skilled, trained professionals in accordance with the instructions in this manual. This pneumatic tool is designed to be used with appropriate abrasive for sanding metals, wood, stone, plastics and other materials. It should only be used for such sanding applications and within its marked capacity and ratings. Only accessories specifically recommended by 3M should be used with this tool. Use in any other manner or with other accessories could lead to unsafe operating conditions.
Do not operate tool in water or in an excessively wet application.
Do not use abrasive products that have a Max RPM less than the RPM rating marked on the tool.

Summary of device labels containing safety information	
Marking	*Description*
	⚠ **WARNING:** READ AND UNDERSTAND INSTRUCTION MANUAL BEFORE OPERATING TOOL.
	⚠ **WARNING:** ALWAYS WEAR APPROVED EYE PROTECTION
	⚠ **WARNING:** ALWAYS WEAR APPROVED HEARING PROTECTION
	Direction of Rotation
Prolonged vibration may cause injury	Vibration Safety note
12,000 r/min.	Maximum rotational speed
90 PSIG / 6.2 BAR MAX	Maximum Air Pressure
Use accessories rated at tool speed or higher	Accessories Speed Warning Note
Use appropriate guard	Guard Safety Warning Note

Explanation of Signal Word Consequences

⚠ **WARNING:** Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury and/or property damage.

⚠ **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and/or property damage.

Read the Safety Data Sheets (SDS) before using any materials.

Contact the suppliers of the workpiece materials and abrasive materials for copies of the SDS if one is not readily available.

⚠WARNING!

Exposure to DUST generated from workpiece and/or abrasive materials can result in lung damage and/or other physical injury.

Use dust capture or local exhaust as stated in the SDS. Wear government-approved respiratory protection and eye and skin protection.

Failure to follow this warning can result in serious lung damage and/or physical injury.

Original Instructions

⚠WARNING

To reduce the risks associated with impact from abrasive product or tool breakup, sharp edges, hazardous pressure, rupture, vibration and noise:

- Read, understand and follow the safety information contained in these instructions prior to the use of this tool. Retain these instructions for future reference.
- Only personnel who are properly trained should be allowed to service this tool.
- Practice safety requirements. Work alert, have proper attire, and do not operate tool under the influence of alcohol or drugs.
- Operators and other personnel must always wear protection for eyes, ears, and respiratory protection when in the work area or while operating this product. Follow your employer's safety policy for PPE's and/or ANSI Z87.1 or local/national standards for eyewear and other personal protective equipment requirements.
- Wear leather apron or other protective apparel, taking into consideration the type of work being done.
- Never exceed marked maximum input pressure (90psi / .62Mpa / 6.2Bars).
- Proper eye protection must be worn at all times.
- Tool shall not be operated in the presence of bystanders.
- If you notice any abnormal noise or vibration when operating the product, immediately discontinue its use and inspect for worn or damaged components. Correct or replace the suspect component. If abnormal noise or vibration still exists, return the tool to 3M for repair or replacement. Refer to warranty instructions.
- Never operate this tool without all guards or safety features in place and in proper working order.
- Never over-ride or disable the safety features of the start-stop control such that it is in the on position.
- Make sure the tool is disconnected from its air source before servicing, inspecting, maintaining, cleaning, and before changing abrasive product.
- Prior to use, or if dropped or jammed, inspect mounting hardware, tool arbor and abrasive product for possible chips, cracks or other damage, and insure the abrasive product is correctly secured. If damaged, or if safety labels cannot be read, replace with new abrasive product, mounting hardware, tool arbor, and/or labels available from 3M.
- Only use accessories supplied or recommended by 3M.
- Use only with mounting hardware recommended by 3M; check with 3M for mounting hardware requirements.
- Never allow this tool to be used by children or other untrained people.
- Do not leave an unattended tool connected to air source.

To reduce the risk associated with skin abrasion, burns, cuts, or entrapment:

- Keep hands, hair, and clothing away from the rotating part of the tool.
- Wear suitable protective gloves while operating tool.
- Do not touch the rotating parts during operation for any reason.
- Do not force tool or use excessive force when using tool.

To reduce the risk of all hazards associated with vibration:

- If any physical hand/wrist discomfort is experienced, work should be stopped promptly to seek medical attention. Hand, wrist and arm injury may result from repetitive work, motion and overexposure to vibration.

To reduce the risks associated with loud noise:

- Always wear protection for eyes, ears, and respiratory protection while operating this product. Follow your employer's safety policy for PPE's and/or ANSI Z87.1 or local/national standards for eyewear and other personal protective equipment requirements.
- Always wear hearing protection while operating this tool. Follow your employer's safety policy or local/national standards for personal protective equipment requirements.

To reduce the risk associated with fire or explosion:

- Do not operate the tool in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. The abrasives are able to create sparks when working material, resulting in the ignition of the flammable dust or fumes.
- Refer to MSDS of material being worked as to potential for creating fire or explosion hazard.

To reduce the risk associated with hazardous dust ingestion or eye/skin exposure:

- Use appropriate respiratory and skin protection, or local exhaust as stated in the MSDS of the material being worked on.

To reduce the risk associated with hazardous voltage:

- Do not allow this tool to come into contact with electrical power sources as the tool is not insulated against electrical shock.

⚠CAUTION

To reduce the risk associated with whipping or hazardous pressure-rupture:

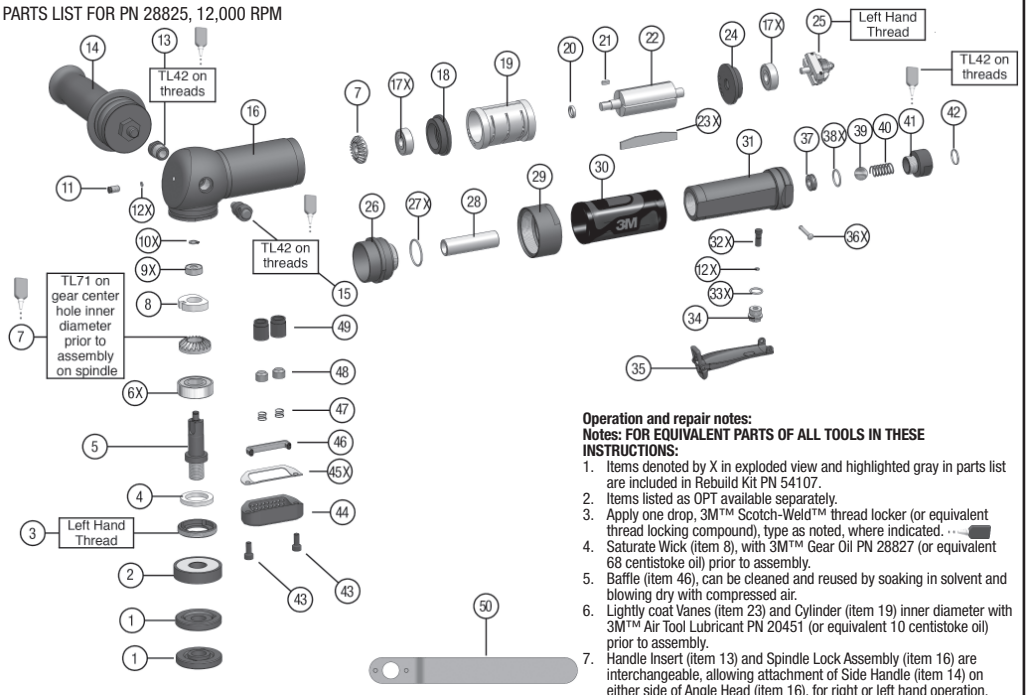
- Ensure supply hose is oil resistant and is properly rated for required working pressure.
- Do not use tools with loose or damaged air hoses or fittings.
- Be aware that incorrectly installed hoses and fittings might unexpectedly come loose at any time and create a whipping/impact hazard.

To reduce the risk associated with fly off of abrasive product or parts:

- Use care in attaching abrasive product and mounting hardware; following the instructions to ensure that they are securely attached to the tool before use or free-spinning.
- Never point this product in the direction of yourself or another person, or start tool unintentionally.
- Never over-tighten accessory fasteners.

Parts Page

PARTS LIST FOR PN 28825, 12,000 RPM



Operation and repair notes:
Notes: FOR EQUIVALENT PARTS OF ALL TOOLS IN THESE INSTRUCTIONS:

1. Items denoted by X in exploded view and highlighted gray in parts list are included in Rebuild Kit PN 54107.
2. Items listed as OPT available separately.
3. Apply one drop, 3M™ Scotch-Weld™ thread locker (or equivalent thread locking compound), type as noted, where indicated.
4. Saturate Wick (item 8), with 3M™ Gear Oil PN 28827 (or equivalent 68 centistoke oil) prior to assembly.
5. Baffle (item 46), can be cleaned and reused by soaking in solvent and blowing dry with compressed air.
6. Lightly coat Vanes (item 23) and Cylinder (item 19) inner diameter with 3M™ Air Tool Lubricant PN 20451 (or equivalent 10 centistoke oil) prior to assembly.
7. Handle Insert (item 13) and Spindle Lock Assembly (item 16) are interchangeable, allowing attachment of Side Handle (item 14) on either side of Angle Head (item 16), for right or left hand operation.
8. Exhaust Cover (item 44) is reversible, for right or left hand operation.

Fig.	3M PN	Description	Qty
1	54069	Flange Nut, 5/8-11	2
2	54061	Autobalancer	1
3	54059	Retaining Ring 38 mm x 6 mm	1
4	54058	Felt Ring 32 mm x 4 mm	1
5	54057	Spindle 5/8-11	1
6	54055	Bearing, Main Spindle	1
7	54054	Gear Set	1
8	54060	Wick, Gear Oil	1
9	54053	Bearing, Top Spindle	1
10	54052	Circlip	1
11	54051	Oiler Screw	1
12	54081	O Ring 5.6 mm x 1 mm	2
13	54049	Handle Insert	1
14	54048	Side Handle, 2.5" x 6", M10-1.5	1
15	54070	Spindle Lock Assembly	1
16	54050	Angle Head Housing	1
17	54089	Bearing, Motor	2
18	54090	Housing, Front Motor Bearing	1
19	54091	Cylinder, Motor	1
20	54092	Spacer, Rotor	1
21	54104	Key, Square 3 mm x 3 mm x 8 mm	1
22	54094	Rotor	1
23	54093	Rotor Vane Set of 4	1
24	54095	Housing, Rear Motor Bearing	1
25	54097	Governor 12K RPM	1
26	54071	Connector, Angle Head	1
27	54100	O Ring, 44 mm x 2 mm	1
28	54072	Air Inlet Tube	1
29	54073	Lock Ring	1
30	54074	Cover, Rear Handle Housing	1

Fig.	3M PN	Description	Qty
31	54075	Housing, Rear Handle	1
32	54080	Valve Stem,Throttle	1
33	54082	O Ring, 11 mm x 1.6 mm	1
34	54083	Insert, Throttle	1
35	06642	Safety Lever Assembly	1
36	54079	Pin, Safety Lever	1
37	54076	Throttle Insert	1
38	54103	O Ring, 20.5 mm x 2 mm	1
39	54077	Ball, Air Inlet	1
40	54078	Spring, Air Inlet	1
41	54102	Bushing, Air Inlet	1
42	54101	Filter, Air Inlet	1
43	54099	Screw, Exhaust M5 x 6 mm	2
44	54088	Cover, Exhaust	1
45	54098	Gasket, Exhaust	1
46	54087	Baffle, Exhaust	1
47	54086	Spring, Exhaust	2
48	54085	Piston, Exhaust	2
49	54084	Housing, Exhaust	2
50	54105	Wrench, Spanner, 4 mm x 30 mm B. C.	1
--	54107	Rebuild Kit	OPT
--	54106	Tool Kit, Rebuild	OPT
--	28828	3M™ Air Tool Lubricant, 1 oz	OPT
--	20451	3M™ Air Tool Lubricant, 4 oz	OPT
--	20466	3M™ Air Tool and Compressor Lubricant, Quart	OPT
--	20467	3M™ Air Tool and Compressor Lubricant, Gallon	OPT
--	28827	3M™ Gear Oil, 4 oz	OPT

Parts Page

PARTS LIST FOR PN 88577, 12,000 RPM

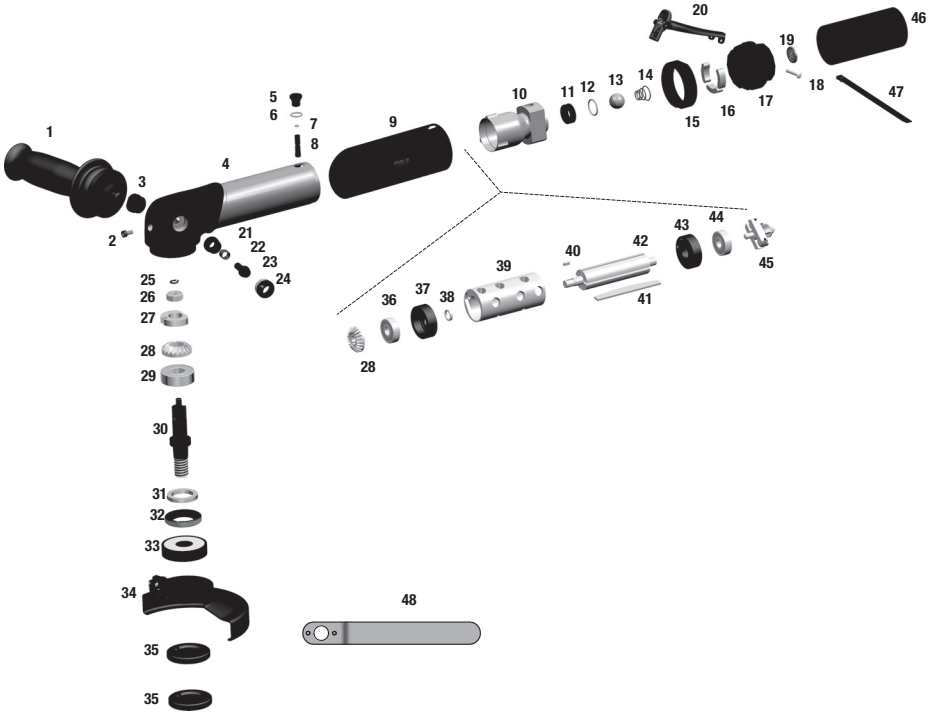


Fig.	3M PN	Description	Qty	Fig.	3M PN	Description	Qty
1	54048	54048 Antivibration Side Handle	1	26	54053	Bearing	1
2	88773	Oiler Screw	1	27	54060	Wick, Oil Grease	1
3	88774	Side Handle Insert	1	28	54054	Gear Set	1
4	88775	88775 Angle Head (Grinder)	1	29	54055	Bearing, Main Spindle	1
4	88776	Angle Head (Housing)	1	30	54057	Spindle 5/8-11	1
5	88777	Plug Screw	1	31	54058	Felt Ring 32 mm x 4 mm	1
6	88778	8 O Ring Plug Screw	1	32	54059	Retaining Ring 38 mm x 6 mm	1
7	88779	O Ring Valve Stem	1	33	54061	Autobalancer	1
8	88780	Valve Stem	1	34	54062	Guard Assembly (4.5") Grinder	OPT
9	88781	Moulded Sleeve	1		54063	Guard Assembly, Jumbo 4 1/2"	OPT
10	88782	Governor/Throttle Housing	1		54065	Guard Assembly, Standard 5"	OPT
11	88783	Throttle Insert	1		54066	Guard Assembly, Jumbo 5"	OPT
12	88784	O Ring Throttle Seat	1	35	54069	Flange Nut, 5/8-11	2
13	88785	Throttle Ball	1	36	54089	Bearing Motor Front	1
14	88786	Throttle Spring	1	37	88796	Front Bearing Housing	1
15	88787	Lock Ring	1	38	54092	Spacer, Rotor	1
16	88788	Baffle Material	3	39	88797	Cylinder	1
17	88789	Throttle Hose Connector	1	40	54104	Key, Square 3 mm x 3 mm x 8 mm	1
18	54079	Lever Pin	1	41	88798	Vane	4
19	88790	Filter, Air Inlet	1	42	88799	Rotor	1
20	88791	Lever	1	43	88800	Rear Bearing Housing	1
21	88792	Lock Pin Sleeve	1	44	88801	Rear Bearing	1
22	88793	Lock Pin Spring	1	45	88802	Governor	1
23	88794	Lock Pin	1	46	88803	Exhaust Overhose	OPT
24	88795	Lock Pin Housing	1	47	NA	Overhose Zip Tie Strap	OPT
25	54052	Circlip	1	48	54105	Wrench, Spanner, 4 mm x 30 mm B. C.	1

Product Configuration / Specifications

Model Number	Rotation Speed (r/min)	Spindle Size	Product Net Wt kg (lb.)	Air Consumption l/min. (CFM)	Power kW (HP)	*Noise Level dBA Pressure (Power)	**Vibration Level m/s^2 (ft/s^2)	**Uncertainty K m/s^2 (ft/s^2)
28825	12,000	5/8-11	2.2 (4.85)	1132.7 (40.0)	1.12 (1.5)	81.9 (90.2)	1.63 (5.35)	0.54 (1.77)
88577	12,000	5/8-11	2.1 (4.5)	1132 (40.0)	1.12 (1.5)	89 (97)	3.10 (10.2)	1.02 (3.34)

* Declared noise levels; measurements carried out in accordance with standard EN ISO 15744.
** Declared vibration levels in accordance with EN ISO 20643 and EN ISO 28927-3.

IMPORTANT NOTE: The noise and vibration values stated in the table are from laboratory testing in conformity with stated codes and standards and are not sufficient risk evaluation for all exposure scenarios. The actual exposure values and amount of risk or harm experienced to an individual is unique to each situation and depends upon the surrounding environment, the way in which the individual works, the particular material being worked, work station design, as well as upon the exposure time and the physical condition of the user. 3M cannot be held responsible for the consequences of using declared values instead of actual exposure values for any individual risk assessment.

Operating / Maintenance Instructions

PRIOR TO THE OPERATION
The tool is intended to be operated as a hand held tool. It is always recommended that while using the tool, operators stand on a solid floor, in a secure position with a firm grip and footing. Be aware that the tool can develop a torque reaction. See the section in “SAFETY PRECAUTIONS”.

Use a clean lubricated air supply that will give a measured air pressure at the tool of 6.2 bar (90 psig) when the tool is running with the lever fully depressed. It is recommended to use an approved 12.7 mm (1/2 in) x 8 m (25 ft) maximum length airline for tool 28825 or an approved 9.5 mm (3/8 in) x 8 m (25 ft) maximum length airline for tool 88577. Connect the tool to the air supply as shown in Figure A. Do not connect the tool to the airline system without an easily accessible air shut off valve. It is strongly recommended that an air filter, regulator and lubricator (FRL) be used as shown in Figure A as this will supply clean, lubricated air at the correct pressure to the tool. In any case appropriate air pressure regulators shall be used at all times while operating this tool where the supply pressure exceeds the marked maximum of the tool. Details of such equipment can be obtained from your tool distributor. Adjust air line lubricator equipment such that two drops of 3M™ Air Tool Lubricant PN 20451 (or equivalent 10 centistoke oil) per minute are provided through the hose to the air inlet of the tool. If excessive oil is noted in the exhaust air, reduce the drip rate of the air line lubricator equipment accordingly. If such equipment is not used, the tool should be manually lubricated. To manually lubricate the tool, disconnect the airline and put two to three drops of 3M™ Air Tool Lubricant PN 20451 (or equivalent 10 centistoke oil) into the air inlet of the tool. Reconnect tool to the air supply and run tool slowly for a few seconds to allow air to circulate the oil. If the tool is used frequently, lubricate it on a daily basis or lubricate it if the tool starts to slow or lose power. It is recommended that the air pressure at the tool be 6.2 bar (90 psig) while the tool is running so the maximum RPM is not exceeded. The tool can be run at lower pressures but should never be run higher than 6.2 bar (90 psig). If run at lower pressure the performance of the tool is reduced.

Recommended Airline Size			Recommended Maximum Hose Length		Air Pressure		
Model 28825	12.7 mm	1/2 in	8 meters	25 feet	Maximum Working Pressure	6.2 bar	90 psig
Model 88577	9.5 mm	3/8 in			Recommended Minimum	N/A	N/A

Proper gear set lubrication is critical to maximizing tool life and performance. To lubricate the gear set inside the tool angle head, remove Oiler Screw (item 11) from Angle Head (item 16) and add five to ten drops of 3M™ Gear Oil PN 28827 (or equivalent 68 centistoke oil) to Wick (item 8) every eight hours of tool operation. If excessive oil is noted on the Spindle (item 5) during operation, reduce the number of drops provided accordingly.

Safety Precautions

1. Read all instructions before using this tool. All operators must be fully trained in its use and aware of these safety rules.
2. The tool RPM should be checked on a regular basis to ensure proper operating speed.
3. Make sure the tool is disconnected from the air supply. Attach the 3M™ Abrasive to the sander adaptor using the wrenches supplied with the tool.
4. Always wear required safety equipment when using this tool.
5. When sanding always start the tool just prior to contacting the work piece. Stop air flow to the tool as it is removed from the work piece.
6. Always remove the air supply to the sander before fitting, adjusting or removing the abrasive.
7. Always adopt a firm footing and grip and be aware of torque reaction developed by the sander.
8. Use only 3M approved spare parts.
9. Always ensure the material being worked is firmly fixed to avoid movement.
10. Check hose and fittings regularly for wear. Do not carry the tool by its hose; always be careful to prevent the tool from being started when carrying the tool with the air supply connected.
11. Dust can be highly combustible. Keep working area clean.
12. If tool is serviced or rebuilt check to ensure that the maximum tool RPM is not exceeded and that there is no excessive tool vibration.
13. Do not exceed maximum recommended air pressure. Use safety equipment as recommended.
14. Prior to installing any sanding or polishing accessory, always check that its marked maximum operating speed is equal or higher than the rated speed of this tool.
15. The tool is not electrically insulated. Do not use where there is a possibility of contact with live electricity, gas pipes, and/or water pipes.
16. This tool is not protected against hazards inherent in grinding and cutting operations, and no such cutting products should ever be attached.
17. Take care to avoid entanglement with the moving parts of the tool with clothing, ties, hair, cleaning rags or loose hanging objects. If entangled, stop air supply immediately to avoid contact with moving tool parts.
18. Keep hands clear of the spinning abrasive during use.
19. If the tool appears to malfunction, remove from use immediately and arrange for service and repair.
20. Immediately release the start handle in the event of any disruption of pressure; do not attempt to restart until the disruption has been corrected.
21. Do not allow the tool to free spin without taking precautions to protect any persons or objects from the loss of the abrasive or pad ruptures.
22. When tool is not in use, store in a clean dry environment free of debris.
23. Operate tool in a well lit work area.
24. Recycle or dispose of tool according to Local, State, and Federal regulations.
25. Whenever performing maintenance procedures, use care to avoid exposure to any hazardous substances deposited on the tool as a result of work processes. Also, refer to warnings related to dust exposure.

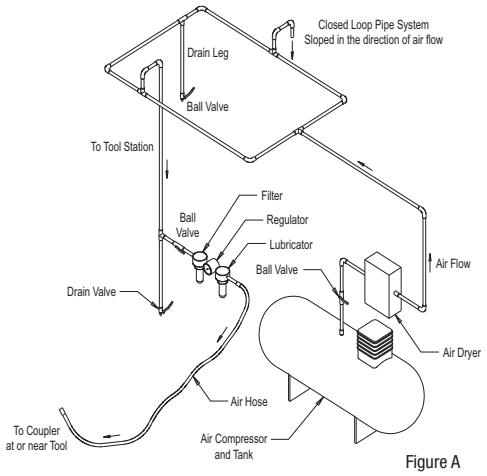
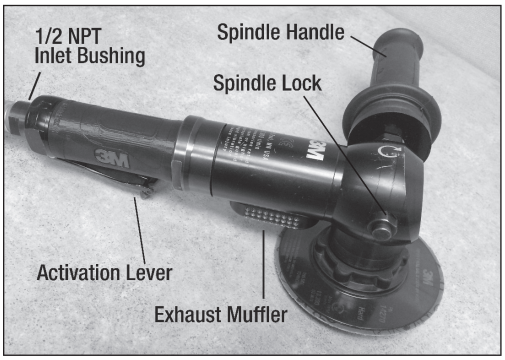


Figure A

Description of Functions and Setting & Testing

PN 28825



PN 88577

SETTING & TESTING TOOL SPEED:

1. Ensure the Activation Lever is not depressed.
2. Connect the compressed air line.
3. Press the Activation Lever slowly and increase force until tool is at full speed.
4. Use a Rotary Tachometer to check the speed.
5. Check speed regularly.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

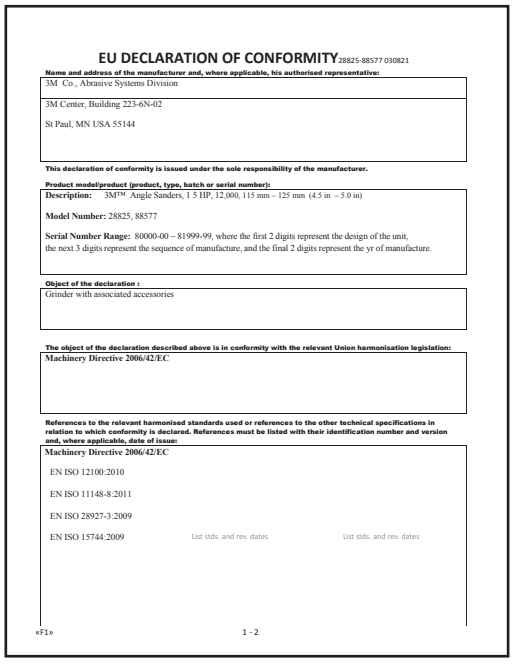
Warranty, Limited Remedy, and Disclaimer: Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

Submitting a Warranty Claim: Contact your dealer when submitting a warranty claim in accordance with the restrictions listed above. Please note that all warranty claims are subject to manufacturer's approval. Be sure to keep your sales receipt in a safe place. This must be submitted when filing a warranty claim, within 1 year from the date of purchase. For additional assistance call 1-800-362-3550.

Product Repair after Warranty Has Expired: Repair of 3M Abrasive Power tools that are not under warranty is available through 3M or a 3M Authorized Tool Repair Representative. Contact your 3M Abrasive Power Tool Distributor for details, or call 1-800-362-3550.

For 3M Product Information Call:
800-3M HELPS (800-364-3577) toll free
651-737-6501 direct dial



EU DECLARATION OF CONFORMITY 28825-88577 030821

Name and address of the manufacturer and, where applicable, his authorised representative:

3M Co., Abrasive Systems Division

3M Center, Building 223-6N-02

St Paul, MN USA 55144

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product model/product (product, type, batch or serial number):

Description: 3M™ Angle Sanders, 1.5 HP, 12,000, 115 mm – 125 mm (4.5 in – 5.0 in)

Model Number: 28825, 88577

Serial Number Range: 80000-00 – 81999-99, where the first 2 digits represent the design of the unit, the next 3 digits represent the sequence of manufacture, and the final 2 digits represent the yr of manufacture.

Object of the declaration :

Grinder with associated accessories

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery Directive 2006/42/EC

References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared. References must be listed with their identification number and version and, where applicable, date of issue:

Machinery Directive 2006/42/EC:

EN ISO 12100:2010

EN ISO 11148-8:2011

EN ISO 28927-3:2009

EN ISO 15744:2009 List stds. and rev. dates List stds. and rev. dates

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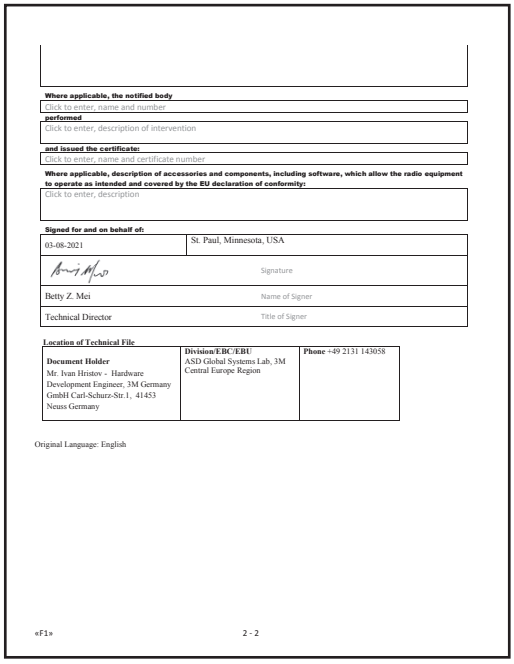

Where applicable, the notified body

Click to enter, name and number

performed

Click to enter, description of intervention

and issued the certificate:

Click to enter, name and certificate number

Where applicable, description of accessories and components, including software, which allow the radio equipment to operate as intended and covered by the EU declaration of conformity:

Click to enter, description

Signed for and on behalf of:

03-08-2021	St. Paul, Minnesota, USA
	Signature
Betty Z. Mei	Name of Signer
Technical Director	Title of Signer

Location of Technical File

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Original Language: English

«F1» 2 - 2

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