



# CUT-OFF WHEEL TOOL INSTRUCTIONS MANUAL

## 115 MM - 125 MM (4 ½ 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

These pneumatic tools are designed to be used with the appropriate size Type 1 and Type 41 abrasive Cut-Off Wheel for cutting metals. It should only be used for such cutting 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 cut-off wheels that have a Max RPM less than the marked RPM Rating on the tool.

#### Summary of device labels containing safety information

Marking	Description
	<b>WARNING:</b> READ AND UNDERSTAND INSTRUCTION MANUAL BEFORE OPERATING TOOL.
	<b>WARNING:</b> ALWAYS WEAR APPROVED EYE PROTECTION
	<b>WARNING:</b> 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 Material Safety Data Sheets (MSDS) before using any materials.



Contact the suppliers of the workpiece materials and abrasive materials for copies of the MSDS 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 MSDS. 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.



## 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 tools 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 (mounting hardware, abrasive product, etc). 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 as a cut-off wheel tool without all guards or safety features in place and in proper working order.
- Prior to use, ensure guard is oriented to protect the operator from flying fragments and is properly secured.
- Do not remove or disable safety feature of on-off control device.
- Make sure the tool is disconnected from its air source before servicing, inspecting, maintaining, cleaning, and before changing abrasive product.
- Only use wheel retainers and wheel arbors supplied by 3M.
- Prior to use, or if dropped or jammed, inspect wheel retainers and wheel arbors and abrasive product for possible chips, cracks or other damage, and insure the abrasive product is correctly secured. If damaged, replace with new abrasive product and wheel retainers and wheel arbors available from 3M.
- Prior to use, inspect wheel retainers and wheel arbors and abrasive product for possible damage. If damaged, replace with new abrasive product and wheel retainers and wheel arbors available from 3M.
- Never over-ride the safety start-stop control such that it is in the on position.
- Use only with mounting hardware recommended by 3M; check with 3M for mounting hardware requirements.
- If the tool is jammed, shut off the tool and ease it free. Ensure the abrasive product is correctly secured.
- Do not use cut-off wheel tool for side grinding.

### **To reduce the risks associated with skin abrasion, burns, cutting & severing, impact or entrapment:**

- Never install and use router bits or cutting-off wheels in a die grinder tool (which is unguarded).
- Keep hands, hair, and clothing away from the cutting 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 risks 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.

### **To reduce the risks 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.

### **To reduce the risks 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 risks 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 risks associated with whipping:**

- 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.

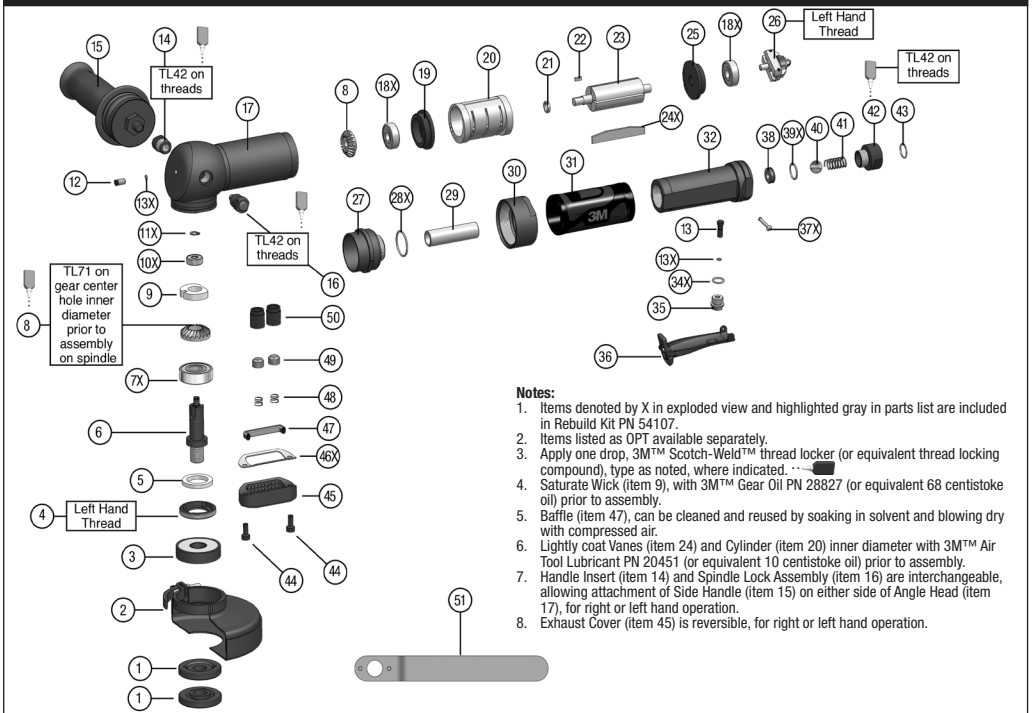
### **To reduce the risks associated with flying off of accessory parts:**

- Use care in attaching abrasive product and mounting hardware; following the instructions to ensure that they are securely attached to the tool before use.

### **To reduce the risks associated with hazardous pressure or rupture:**

- Be aware that incorrectly installed hoses and fittings might unexpectedly come loose at any time and create a whipping/impact hazard.

# Parts Page



**Notes:**

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 9), with 3M™ Gear Oil PN 28827 (or equivalent 68 centistoke oil) prior to assembly.
5. Baffle (item 47), can be cleaned and reused by soaking in solvent and blowing dry with compressed air.
6. Lightly coat Vanes (item 24) and Cylinder (item 20) inner diameter with 3M™ Air Tool Lubricant PN 20451 (or equivalent 10 centistoke oil) prior to assembly.
7. Handle Insert (item 14) and Spindle Lock Assembly (item 16) are interchangeable, allowing attachment of Side Handle (item 15) on either side of Angle Head (item 17), for right or left hand operation.
8. Exhaust Cover (item 45) is reversible, for right or left hand operation.

Fig.	3M PN	Description	Qty	Fig.	3M PN	Description	Qty
1	54069	Flange Nut, 5/8-11	2	30	54073	Lock Ring	1
1	54068	Flange Nut, M14-2	2	31	54074	Cover, Rear Handle Housing	1
2	54064	Guard Assembly, Cut Off Wheel 4 1/2"	1	32	54075	Housing, Rear Handle	1
2	54067	Guard Assembly, Cut Off Wheel 5"	OPT	33	54080	Valve Stem, Throttle	1
3	54061	Autobalancer	1	34	54082	O Ring, 11 mm x 1.6 mm	1
4	54059	Retaining Ring 38 mm x 6 mm	1	35	54083	Insert, Throttle	1
5	54058	Felt Ring 32 mm x 4 mm	1	36	06642	Safety Lever Assembly	1
6	54057	Spindle 5/8-11	1	37	54079	Pin, Safety Lever	1
6	54056	Spindle M14-2	1	38	54076	Throttle Insert	1
7	54055	Bearing, Main Spindle	1	39	54103	O Ring, 20.5 mm x 2 mm	1
8	54054	Gear Set	1	40	54077	Ball, Air Inlet	1
9	54060	Wick, Gear Oil	1	41	54078	Spring, Air Inlet	1
10	54053	Bearing, Top Spindle	1	42	54102	Bushing, Air Inlet	1
11	54052	Circlip	1	43	54101	Filter, Air Inlet	1
12	54051	Oiler Screw	1	44	54099	Screw, Exhaust M5 x 6 mm	2
13	54081	O Ring 5.6 mm x 1 mm	2	45	54088	Cover, Exhaust	1
14	54049	Handle Insert	1	46	54098	Gasket, Exhaust	1
15	54048	Side Handle, 2.5" x 6", M10-1.5	1	47	54087	Baffle, Exhaust	1
16	54070	Spindle Lock Assembly	1	48	54086	Spring, Exhaust	2
17	54050	Angle Head Housing	1	49	54085	Piston, Exhaust	2
18	54089	Bearing, Motor	2	50	54084	Housing, Exhaust	2
19	54090	Housing, Front Motor Bearing	1	51	54105	Wrench, Spanner, 4 mm x 30 mm B. C.	1
20	54091	Cylinder, Motor	1	--	54107	Rebuild Kit	OPT
21	54092	Spacer, Rotor	1	--	54106	Tool Kit, Rebuild	OPT
22	54104	Key, Square 3 mm x 3 mm x 8 mm	1	--	28828	3M™ Air Tool Lubricant, 1 oz	OPT
23	54094	Rotor	1	--	20451	3M™ Air Tool Lubricant, 4 oz	OPT
24	54093	Rotor Vane Set of 4	1	--	20466	3M™ Air Tool and Compressor Lubricant, Quart	OPT
25	54095	Housing, Rear Motor Bearing	1	--	20467	3M™ Air Tool and Compressor Lubricant, Gallon	OPT
26	54097	Governor 12K RPM	1	--	28827	3M™ Gear Oil, 4 oz	OPT
27	54071	Connector, Angle Head	1				
28	54100	O Ring, 44 mm x 2 mm	1				
29	54072	Air Inlet Tube	1				

## Product Configuration / Specifications

Model Number	Diameter mm (in.)	Spindle Size	Rotation Speed (r/min)	Guard Size mm (in)	Product Net Wt kg (lb.)	Air Consumption l/min. (CFM)	Power kW (HP)	*Noise Level dBA Pressure (Power)	**Vibration Level m/s <sup>2</sup> (ft/s <sup>2</sup> )	**Uncertainty K m/s <sup>2</sup> (ft/s <sup>2</sup> )
28826	115 - 125 (4.5 - 5.0)	5/8-11	12,000	115 (4.5)	2.5 (5.51)	1132.7 (40.0)	1.12 (1.5)	83.9 (92.2)	3.79 (12.4)	1.25 (4.1)
65657	127 (5.0)	M14	12,000	125 (5)	2.55 (5.62)	1132.7 (40.0)	1.12 (1.5)	83.9 (92.2)	3.79 (12.4)	1.25 (4.1)
65658	115 (4.5)	M14	12,000	115 (4.5)	2.5 (5.51)	1132.7 (40.0)	1.12 (1.5)	83.9 (92.2)	3.79 (12.4)	1.25 (4.1)

\* 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 28927-1.

**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. Values measured in a particular work place may be higher than the declared values. 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 "SAFETY PRECAUTIONS".

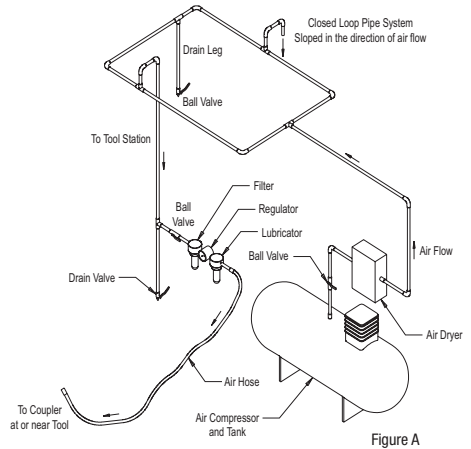
Use a clean lubricated air supply that will give a measured air pressure at the tool of 6.2 bar (90 psig) when the tool is running with the lever fully depressed. It is recommended to use an approved 12.7 mm (1/2 in) x 8 m (25 ft) maximum length airline. Connect the tool to the air supply as shown in 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		
12.7 mm	1/2 in	8 meters	25 feet	Maximum Working Pressure	6.2 bar	90 psig
				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 (item 17), remove Oiler Screw (item 12) from Angle Head (item 17) and add five to ten drops of 3M™ Gear Oil PN 28827 (or equivalent 68 centistoke oil) to Wick (item 9) every eight hours of tool operation. If excessive oil is noted on the Spindle (item 6) 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 (at shift change).
3. Make sure the tool is disconnected from the air supply. Select a suitable abrasive cut-off wheel and secure it to the mounting shaft using the wheel retainer and wheel arbor supplied with the tool.  
Be careful to center the cut-off wheel on the wheel arbor before tightening the wheel retainer nut. Do not over tighten the wheel retainer or you will crack the wheel.
4. Always wear required safety equipment when using this tool.
5. Always remove the air supply to the tool before fitting, adjusting or removing the abrasive cut-off wheel.
6. Always adopt a firm footing and grip and be aware of torque reaction developed by the tool.
7. Use only 3M approved spare parts.
8. Always ensure the material being worked is firmly fixed to avoid movement.
9. 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.
10. Dust can be highly combustible. Keep working area clean.
11. 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.
12. Do not exceed maximum recommended air pressure. Use safety equipment as recommended.
13. Prior to installing any abrasive cut-off wheel, always check that it's marked maximum operating speed is equal or higher than the rated speed of this tool.
14. 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.
15. 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.
16. Keep hands clear of the spinning cut-off wheel during use.
17. If the tool appears to malfunction, remove from use immediately and arrange for service and repair.
18. Do not allow the tool to free spin without taking precautions to protect any persons or objects from the rupture of the abrasive cut-off wheel.
19. Immediately release the start handle in the event of any disruption of pressure; do not attempt to re-start until the disruption has been corrected.
20. When tool is not in use, store in a clean, dry environment free of debris and in a manner that ensures that the cutting-off wheel is not damaged.
21. Fixture workpiece such that the cut slot is kept at a constant or increasing width during the operation.
22. Operate tool in a well lit work area.
23. Recycle or dispose of tool according to Local, State, and Federal regulations.



## Cut-Off Tools Removing and Mounting Cut-Off Wheels on Tool

1. Disconnect air line from tool.
2. Depress Spindle Lock Assembly (item 16) and loosen the Outer Flange Nut (item 1) using Spanner Wrench (item 51).
3. Remove Flange Nut (item 1) and cut-off wheel from Spindle (item 6).
4. After the old cut-off wheel has been removed from the tool, inspect Spindle (item 6) to ensure that the threads are free of debris and undamaged.
5. Place new cut-off wheel on Spindle (item 6). Ensure center hole of new cut-off wheel engages properly with the inner Flange Nut (item 1) which was not removed from Spindle (item 6).
6. Depress Spindle Lock Assembly (item 16) and tighten the outer Flange Nut (item 1) using Spanner Wrench (item 51). Do not overtighten.

## Description of Functions and Setting & Testing

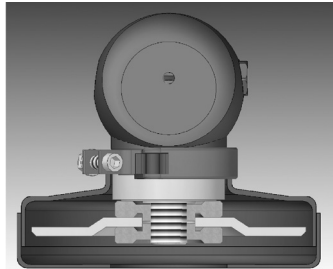
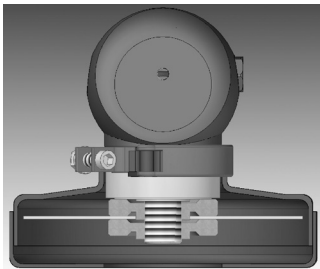
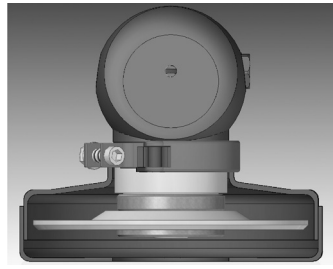
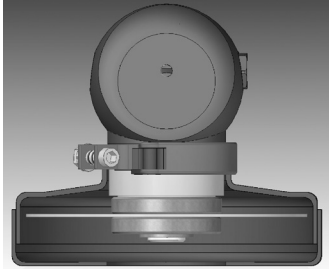


### SETTING & TESTING TOOL SPEED:

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.

## Type 1 Guard Wheel Mounting Hardware and Usage

Refer to ANSI B7.1-2000 Safety Requirements for Use, Care and Protection of Abrasive Wheels and ISO/EN 12413 Safety Requirements for Bonded Abrasive Products for proper abrasive wheel applications.



Type 1 Cut Off Wheel (0.45" Thick)

Cut Off Guard  
PN 54064

1/8" Cut Off Wheel Type 27

Cut Off Guard  
PN 54064

**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

## EC Declaration of Conformity



**Manufacturers Name:** 3M Abrasive Systems Division  
**Manufacturers Address:** 3M Center, Building 223-6N-02  
St Paul, MN USA 55144

Does hereby declare under our sole responsibility that the machinery described below complies with those applicable essential health and safety requirements of the Machinery Directive 2006/42/EC; together with all amendments to date.

**Descriptions:** 3M™ Type 27 Angle Grinders, 1 5 HP, 12,000, 8,000 RPM, 115 mm – 125 mm (4.5 in – 5.0 in)  
3M™ Type 1 Cut-Off Grinders, 1 5 HP, 12,000 RPM, 115 mm – 125 mm (4.5 in – 5.0 in)

**Model Numbers:** 28824, 65655, 65656, 65659, 65660, 28826, 65657, 65658

**Serial Number Range:** 00011A0001 – 93651A9999, where last 4 digits represent the sequential unit manufactured on the date specified in the first 5 numeric characters

The following standards have either been referred to, or complied with, in full or in part as relevant:

EN ISO 12100:2010	Safety of machinery. General principles for design. Risk assessment and risk reduction
EN ISO 11148-7:2013	Hand-held non-electric power tools – Safety Requirements – Part 7: Grinders
EN ISO 28927-1:2009	Hand-held portable power tools. Measurement of vibrations at the handle. Angle and Vertical Grinders
EN ISO 15744:2009	Hand-held non-electric power tools. Noise measurement code. Engineering method (grade 2)

**Full Name of responsible person.**

Anthony B. Clinch

**Position:** Technical Director

**Signature:**

**Date:** 9-9-14  
St. Paul, Minnesota, USA

**Full Name and address of individual responsible to compile technical file within the Community:**

Mr. Claus Geiger - Marketing Operations, Abrasive Systems Div., 3M Deutschland GmbH, Carl-Schurz-Strasse 1, D-41453 Neuss, Germany

**3M**

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