



ELECTRIC VARIABLE SPEED POLISHER INSTRUCTION MANUAL

7 (178 mm), 5/8-11 External Spindle

120VAC 50-60 Hz.

1000 – 3000/min.

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 tool is intended for use in industrial locations, and used only by skilled, trained professionals in accordance with the instructions in this manual. It is designed to be used with 3M pad adapters and appropriate 3M foam buffing pads and with appropriate buffing or polishing compounds for buffing paint finishes, coating finishes, metals, wood, stone, plastics and other materials. It should only be used for such buffing applications and within 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 an excessively damp or wet application.
Do not use buffing pads that have a Max RPM less than the tool Max RPM rating.

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.

Summary of Device and Carton Labels containing Safety Information

Symbol indicates direction of tool rotation

CAUTION: For safe operation, see instructions manual

Symbol indicates "Class II" construction

WARNING - Hazardous voltage

Recycle; Do not dispose of in household waste

Wear eye protection

Wear respiratory protection

Wear gloves

Wear hearing protection

AWG American Wire Gauge

UNC Unified Coarse Thread

NOM Norma Oficial Mexicana Approved Mark

CLASSIFIED Underwriters Laboratories, Inc. United States and Canada Approved Mark

<p>Read the Material Safety Data Sheets (MSDS) before using any materials.</p>    <p>Contact the suppliers of the workpiece materials and abrasive materials for copies of the MSDS if one is not readily available.</p>	<p style="text-align: center;">⚠ WARNING</p> <p>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.</p>
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⚠ GENERAL POWER TOOL SAFETY WARNINGS

⚠ WARNING: Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire, and/or other serious injury.

Save all warnings and instructions for future reference.

The term "power tool" in the warnings refers to your mains-operated (cords) power tool or battery-operated (cordless) power tool.

1. Work Area Safety

- a) **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- b) **Do not operate power tools 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. Electrical Safety

- a) **Power tools plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- f) **If operating a power tool in a damp location is unavoidable, use a ground fault circuit interrupter (GFCI) protected supply.** Use of a GFCI reduces the risk of electric shock.

3. Personal Safety

- a) **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.
- b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.
- d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

4. Power Tool Use and Care

- a) **Do not force the power tool. 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 power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation.** If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.
- e) **Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.**
- f) **Use the power tool, accessories and tool bits, etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

5. Service

Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

⚠ SAFETY WARNINGS FOR ALL OPERATIONS

⚠ WARNING: Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire, and/or other serious injury.

Save all warnings and instructions for future reference.

The term "power tool" in the warnings refers to your mains-operated (cords) power tool or battery-operated (cordless) power tool.

- a) **This power tool is intended to function as polisher. Read all safety warnings, instructions, illustrations and specifications provided with this power tool.** Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.
- b) **Operations such as grinding, sanding, wire brushing, or cutting-off are not recommended to be performed with this power tool.** Operations for which the power tool was not designed may create a hazard and cause personal injury.
- c) **Do not use accessories which are not specifically designed and recommended by the tool manufacturer.** Just because the accessory can be attached to your power tool, it does not assure safe operation.
- d) **The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool.** Accessories running faster than their RATED SPEED can break and fly apart.
- e) **The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool.** Incorrectly sized accessories cannot be adequately guarded or controlled.
- f) **The arbour size of backing pads or any other accessory must properly fit the spindle of the power tool.** Accessories with arbour holes that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.

- g) **Do not use a damaged accessory. Before each use inspect the accessory such as backing pad for cracks, tear or excess. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute.** Damaged accessories will normally break apart during this test time.
- h) **Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate, wear dust mask, hearing protectors, gloves and workshop apron capable of stopping small abrasive or workpiece fragments. The eye protection must be capable of stopping flying debris generated by various operations.** The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtering particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.
- i) **Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment.** Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.
- j) **Hold power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.** Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool live and shock the operator.
- k) **Position the cord clear of the spinning accessory.** If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessory.
- l) **Never lay the power tool down until the accessory has come to a complete stop.** The spinning accessory may grab the surface and pull the power tool out of your control.
- m) **Do not run the power tool while carrying it at your side.** Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.
- n) **Regularly clean the power tool's air vents.** The motor's fan will draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.
- o) **Do not operate the power tool near flammable materials.** Sparks could ignite these materials.
- p) **Do not use accessories that require liquid coolants.** Using water or other liquid coolants may result in electrocution or shock.

▲ ADDITIONAL SAFETY WARNINGS

- a) **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start-up.** The operator can control torque reactions or kickback forces, if proper precautions are taken.
- b) **Never place your hand near the rotating accessory.** Accessory may kickback over your hand.
- c) **Do not position your body in the area where power tool will move if kickback occurs.** Kickback will propel the tool in direction opposite to the wheel's movement at the point of snagging.
- d) **Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory.** Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.
- e) **Do not attach a saw chain woodcarving blade or toothed saw blade.** Such blades create frequent kickback and loss of control.

▲ ADDITIONAL SAFETY WARNINGS FOR POLISHING OPERATIONS

Do not allow any loose portion of the polishing bonnet or its attachment strings to spin freely. Tuck away or trim any loose attachment strings. Loose and spinning attachment strings can entangle your fingers or snag on the workpiece.

Tool Current	Extension Cord Length ft (m)			
	25 (7.6)	50 (15.2)	75 (22.8)	100 (30.4)
10 – 12 A	16 AWG	14 AWG	12 AWG	10 AWG

▲ CAUTION

To reduce the risk associated with environmental contamination:

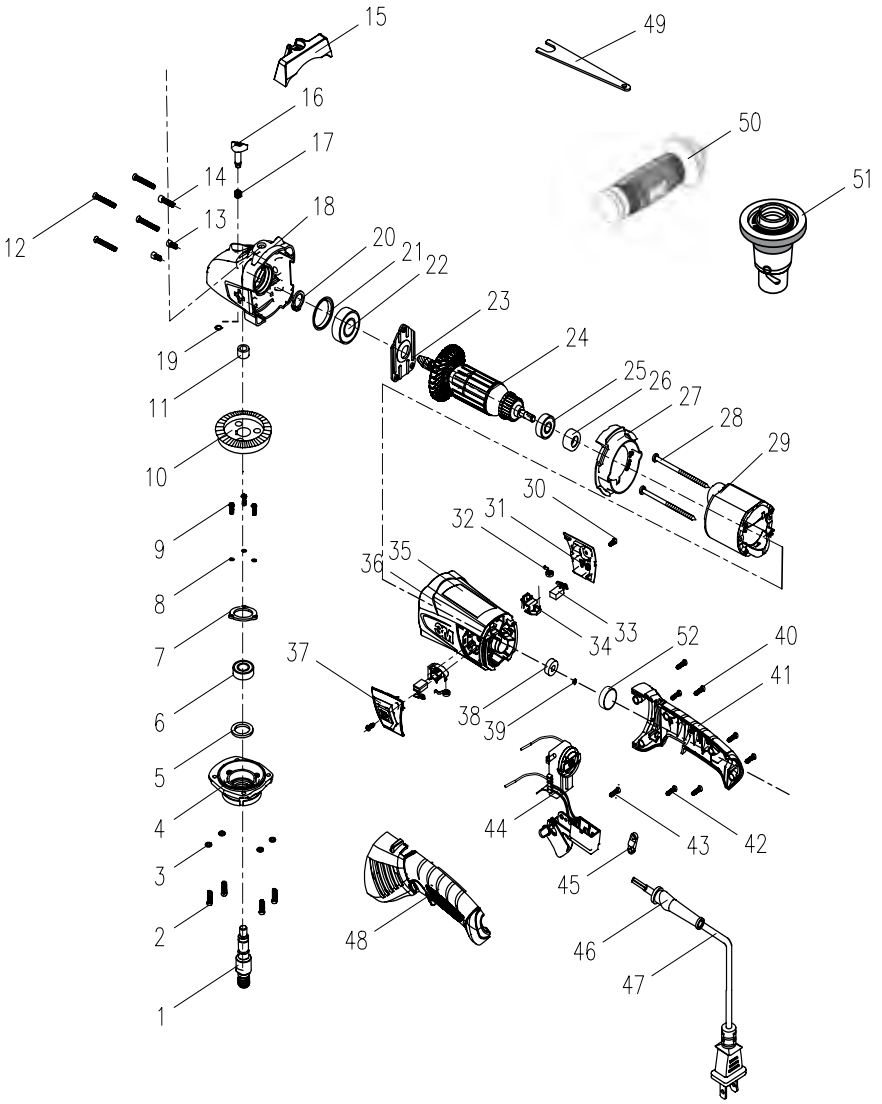
- Do not throw electric power tools into the household waste! In accordance with the European Directive 2002/96/EG on Waste Electrical and Electronic Equipment and transposition into national law, used electric power tools must be collected separately and recycled in an environmentally friendly manner.
- Separate collection of used products and packaging allows materials to be recycled. Use of recycled materials helps prevent environmental pollution and reduces the demand for raw materials.
- Dispose of all the process dust in accordance with all applicable regulations.

To reduce the risks associated with skin abrasion:

- Do not touch the rotating parts of the tool during use for any reason without taking appropriate protective measures.

To reduce the risk associated with serious damage to the power tool:

- Do not operate this tool on a current where the voltage is not within correct limits. Do not operate tools rated A.C. on D.C. current.



Parts List

Model 28391 Parts List			
Item	3M PN	Description	Quantity
1	30901	Spindle	1
2	30902	Pan Head Screw M5X16	4
3	30903	Spring Washer	4
4	30904	Gear Box Cover	1
5	30905	Felt Ring	1
6	30906	Ball Bearing	1
7	30907	Bearing Cover	1
8	30908	Spring Washer	3
9	30909	Pan Head Screw M4X10	3
10	30910	Gear	1
11	30911	Needle Bearing	1
12	30912	Tapping Screw ST4.9X35C	4
13	30913	Screw M5X10	2
14	30914	Screw M5X20	1
15	30915	Bumper	1
16	30916	Spindle Lock	1
17	30917	Spindle Lock Spring	1
18	30918	Gear Box	1
19	30919	Snap Ring	1
20	30920	Circlip for Shaft	1
21	30921	Bearing Rubber Ring	1
22	30922	Ball Bearing	1
23	30923	Bearing Cover	1
24	30924	Armature 120V	1
25	30925	Ball Bearing	1
26	30926	Bearing Bush	1
27	30927	Baffle	1
28	30928	Tapping Screw ST4X75F	2
29	30929	Stator 120V	1
30	30930	Tapping Screw ST4.0X10F	2
31	30931	Locking Cover	1
32	30932	Scroll Spring	2
33	30933	Carbon Brush120V	2
34	30934	Brush Holder	2
35	NA	Label	1
36	30935	Housing	1
37	30936	Locking Cover	1
38	30937	Magnetic Ring	1
39	30938	"E" ring	1
40	30939	Tapping Screw ST4X16F	5
41	30940	Handle Cover Right	1
42	30941	Tapping Screw ST4X14F	2
43	30942	Tapping Screw ST4X10F	1
44	30943	Speed Controller 120V	1
45	30944	Cord Clamp	1
46	30945	Cord Sleeve	1
47	30946	Cord 120V	1
48	30947	Handle Cover Left	1
49	30948	Wrench 17 mm	1
50	28402	Side Handle 3/8-16 Thread	1
51	05752	Quick Release Adapter	Opt
52	30949	Magnetic Ring Cap	1

Product Specifications: Electric Variable Speed Polisher 7 in. (178 mm)

Model	Speed	Pad Size	Spindle Size	Voltage	Frequency	Current	Weight	Length
	/min.	in (mm)	UNC	VAC	Hz.	A	lb. (kg.)	in (mm)
28391	1000 - 3000	7 (178)	5/8 - 11 EXT	120	50 - 60	11	6.6 (3.0)	17 (432)

Operating Instructions

STARTING AND STOPPING POLISHER

1. CAUTION: Make certain the Trigger Switch is in the "OFF" position, and the power source is the same as specified on the tools nameplate.
2. Connect the tool to the power source.
3. Pull the Trigger Switch (A) Fig. 1 to start the motor. Release the Trigger switch button to stop motor.
4. The Trigger Lock (B) Fig. 1 holds the Trigger Switch in the ON position when it is depressed while the Trigger Switch is pulled.
5. To release the Trigger Lock, pull the Trigger Switch to its limit to make the Trigger Lock disengage.

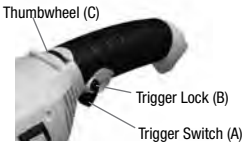


Figure 1



Figure 2

VARIABLE SPEED CONTROL

1. Maximum Speed is adjusted by turning the Thumbwheel (C), Fig. 1. Maximum Speed will be limited to the speed shown on the Thumbwheel when the Trigger Switch is fully pulled.
2. 0-1000/min. is the first position and 0-3000/min. is the final position.
3. Each position provides maximum speeds in 400/min. increments between 1000/min. and 3000/min.
4. Intermediate speeds between 0/min. and any particular Thumbwheel setting can be had with intermediate Trigger Switch positions.

SPINDLE LOCK

1. The Spindle Lock (B) Fig. 2 may be used to secure the Spindle for attaching or removing accessories. Be sure polisher is unplugged from power source before mounting or removing accessories or pads.
2. Engage the Spindle Lock by pressing down on the button while turning the spindle by hand until it engages and secures the spindle.
3. There are three evenly spaced locations where the Spindle Lock can engage.
4. Do not engage the Spindle Lock while the tool is under power or the spindle is in motion.

ATTACHING ADAPTERS

1. 3M™ Adaptor, Part Number 05710, 5/8 in. and 3M™ Quick Release Adaptor Part Number 05752, 5/8 in. each screw onto the tool spindle.
2. The Spindle Lock may be used to secure the Spindle and a 17 mm or 11/16 in. open-end wrench may be used to tighten the adaptor.

3M Quick Release Adaptor 05752

3M Adaptor 05710

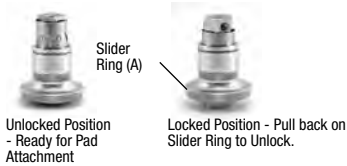


Figure 4

SIDE HANDLE

A side handle is furnished with the polisher. Mount handle in either side position indicated as (A) Fig. 2.

3M™ Back-Up and Buffing Pads

3M Back-Up and Buffing pads are perfectly mated for use on the 3M Polisher. Constructed from premium, industrial-quality materials and featuring a riveted fiberglass and steel hub with molded urethane, their durability and precise construction are the ideal complement to the performance of the 3M Polisher. See Product Specifications. The following charts are a sample of products offered.

3M Part Number	Description: Buffing Pads for 3M™ Quick Release Adaptor 05752
05753	3M™ Perfect-It™ 9 in. Double Sided White Wool Compounding Pad
033279	3M™ Perfect-It™ 8 in. Double Sided Low Linting Wool Pad
05706	3M™ Perfect-It™ 8 in. Double Sided White Foam Compounding Pad
05707	3M™ Perfect-It™ 8 in. Double Sided Black Foam Polishing Pad
05708	3M™ Perfect-It™ 8 in. Blue Ultrafine Double Sided Foam Polishing Pad

3M Part Number	Description: Back-Up and Buffing Pads for 3M™ Adaptor 05710
05703	3M™ Buffing Pad
05704	3M™ Buffing Pad
05705	3M™ Polishing Pad, 9 in.
05717	3M™ Hookit™ Backup Pad, 05717, 7 in. x 3/4 in. 5/8-11
05718	3M™ Perfect-It™ Back-Up Pad
05737	3M™ Perfect-It™ Foam Compounding Pad
05738	3M™ Perfect-It™ Foam Polishing Pad
05721	3M™ Perfect-It™ Hookit™ II Compounding Pad
05723	3M™ Perfect-It™ Foam Compounding Pad

See 3M AAD Catalog 60-4400-9238-9 PN02499 for additional Back-Up and Buff Pads and Accessories.

ATTACHING BUFFING PADS TO 3M™ QUICK RELEASE ADAPTER 05752

1. Before putting a pad onto the adaptor, verify the adaptor is in the unlocked position. To unlock the adaptor pull back on the slider ring. (A) Fig. 4. This is best done with the adaptor mounted to the Polisher.
2. Center the pad over the adaptor and rotate it until the hexagonal hole in the pad aligns with the hexagonal end of the adaptor.
3. Press firmly to snap the pad onto the adaptor.
4. To remove the pad from the adaptor pull back on the slider ring. (A) Fig. 4. This is best done with the adaptor mounted to the Polisher.

ATTACHING BACK-UP AND POLISHING PADS TO 3M™ ADAPTER 05710

1. 3M Adaptor Part Number 05710, 5/8 in. provides a short 5/8-11 mounting stud for Hookit™ Back-Up Pads and Perfect-It™ Polishing Pads.
2. The Spindle Lock may be used to secure the Spindle and the Back-Up pad or Polishing Pad may be tightened or loosened by hand or with an open end wrench.

Maintenance

CLEANING

1. Periodically blow out all air passages with dry compressed air. All plastic parts should be cleaned with a soft damp cloth. NEVER use solvents to clean plastic parts.
2. Wear safety glasses while using compressed air.

FAILURE TO START

1. Should your tool fail to start, check to make sure the prongs on the cord plug are making good contact in the outlet. Also, check for blown fuses or open circuit breakers in the line.
2. If polisher persists in not starting, have it inspected by trained repair personnel.
3. Do not attempt to turn the polisher from the spindle end while trying to start.

BRUSH REPLACEMENT

1. Remove the Torque Screw 2.0 mm (A) Fig. 3 and flip open the Brush Access Cover (B) in Fig. 3. A small flat screwdriver can also be used to remove the T 2.0 Screw and flip open the Cover if inserted in slot (C) Fig. 3.



Figure 3

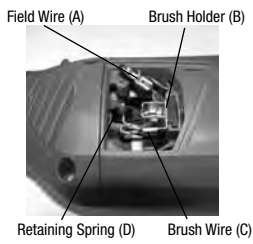


Figure 3a



Figure 3b

2. Remove the Field Wire (A) Fig. 3a from the Brush Holder (B) Fig. 3a and lift the Brush Holder out of the tool using needle nose pliers Fig. 3b.

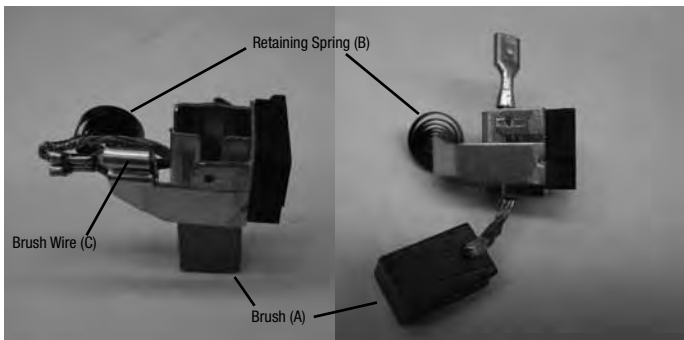


Figure 3c

3. Remove the Brush Wire (C) Fig. 3c from the Brush Holder and allow the Brush (A) Fig 3c to slide downward and out of the Brush Holder. The Retaining Spring (B) Fig. 3c will push the Brush downward.
4. Insert a new Brush by threading the Brush Wire up through the Brush Holder, being careful not to snag or tangle the Retaining Spring. Clip the Brush Wire to the connection on the Brush Holder. The Brush will be held in the Holder, but protruding through the bottom of it.
5. Insert the Holder into the tool as far as possible. As the Holder slides into position, the Brush will rise in the Holder.
6. Reconnect the Field Wire, then replace the Cover and tighten the T 2.0 Screw.

Product Use: All statements, technical information and recommendations contained in this document are based up on tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the 3M product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

Warranty and Limited Remedy: 3M warrants this tool against defects in workmanship and materials under normal operating conditions for one (1) year from the date of purchase. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. User is responsible for determining whether the 3M tool is fit for a particular purpose and suitable for user's application. User must operate the tool in accordance with all applicable operating instructions, safety precautions, and other procedures stated in the operating manual to be entitled to warranty coverage. 3M shall have no obligation to repair or replace any tool or part that fails due to normal wear, inadequate or improper maintenance, inadequate cleaning, nonlubrication, improper operating environment, improper utilities, operator error or misuse, alteration or modification, mishandling, lack of reasonable care, or due to any accidental cause. If a tool or any part thereof is defective within this warranty period, your exclusive remedy and 3M's sole obligation will be, at 3M's option, to repair or replace the tool or refund the purchase price.

Limitation of Liability: Except where prohibited by law, 3M and seller 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.

3M

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