8" Random Orbital Polisher
Electronic Variable Speed

Parts Page Reorder No. PD05•33
Effective August, 2005

Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Model:

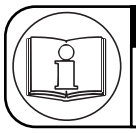
51614 - 0-3,000 RPM Dial
- Variable Speed On/Off Switch
- 120V

C US

⚠ WARNING

Read and understand this tool manual before operating your tool. Follow all safety rules for the protection of operating personnel as well as adjacent areas. For safety information, refer to Code of Federal Regulation – CFR 29 Part 1910, – Safety Requirements and applicable State and Local Regulations.

SAFETY LEGEND



⚠ WARNING

Read and understand tool manual before work starts to reduce risk of injury to operator, visitors, and tool.

⚠ WARNING

Practice safety requirements. Work alert, have proper attire, and do not operate tools under the influence of alcohol or drugs.

⚠ WARNING

Eye protection must be worn at all times, eye protection to conform to ANSI Z87.1.

⚠ WARNING

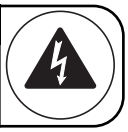
Ear protection to be worn when exposure to sound, exceeds the limits of applicable Federal, State or local statues, ordinances and/or regulations.

⚠ WARNING

Respiratory protection to be used when exposed to contaminants that exceed the applicable threshold limit values required by law.

⚠ WARNING

Electric shock hazard. Avoid bodily contact with grounded objects, bodies of water. Do not damage cord set.



⚠ WARNING

Some dust created by grinding, drilling, and other construction activities contain chemicals known 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
- 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.

Caution: Hand, wrist and arm injury may result from repetitive work, motion and overexposure to vibration.

Tool Intent: Dynabrade Random Orbital Polisher for polishing paint finishes, acrylics, wood, etc.

GENERAL SAFETY RULES

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

SAVE THESE INSTRUCTIONS

Work Area

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which ignite the dust or fumes.
3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

Electrical Safety

1. **Double Insulated tools are equipped with a polarized plug (one blade is wider than the other.) This plug will fit in polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double Insulation ⧈ eliminates the need for the three wire grounded power cord and grounded power supply system.
2. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
3. **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
4. **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.

(continued on next page)

Electrical Safety (Continued)

5. **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W."** These cords are rated for outdoor use and reduce the risk of electric shock.

Personal Safety

1. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
2. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
3. **Avoid accidental starting. Be sure switch is off before plugging in.** Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.
4. **Remove adjusting keys or switches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
5. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
6. **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Tool Use and Care

1. **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
2. **Do not force tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
3. **Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
4. **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventative safety measures reduce the risk of starting the tool accidentally.
5. **Store idle tools in a high, dry place, locked up out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
6. **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.
7. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
8. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool, may become hazardous when used on another tool.
9. **Use the right tool.** Do not force small tools or attachments to do the job of a heavy duty tool.

Service

1. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
2. **When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.** Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury.

SPECIFIC SAFETY RULES

1. **Accessories must be rated for at least the speed recommended on the tool warning label.** Wheels and other accessories running over rated speed can fly apart and cause injury.
2. **Hold tool by insulated gripping surfaces when performing an operation where the tool may contact hidden wiring or its own cord.** Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.

(See Definitions for label symbols on pg. 3)

TOOL DESCRIPTION

Random Orbital Polisher – Is a random orbital electric hand tool which includes: a variable speed on/off switch; side handle; a RPM Dial which maintains desired RPM, when under load; and is equipped with an 8 ft. cord set.

ASSEMBLY and OPERATION INSTRUCTIONS

1. With power source disconnected from tool, securely fasten abrasive/accessory on tool. The rated RPM of the accessory must be equal to or greater than the rated RPM of the tool.
2. Hold tool by the motor housing and the side handle. Do Not hold tool by head/housing assembly. Keep hands away from all polishing edges and moving parts.
3. Tool has variable RPM dial on top side of rear handle. Dial desired maximum RPM (see label B) and then proceed to follow step 4.
4. Squeeze variable speed on/off switch on rear handle to run tool. Tool's on/off switch may be used as a throttle to fluctuate RPM. To lock tool in "on" position continue to squeeze on/off switch and depress side button. Electronic module maintains specified speed even under load. To disengage tool when locked in "on" position push on/off switch inward.

MAINTENANCE and ACCESSORY CARE INSTRUCTIONS

Important: A preventative maintenance program is recommended whenever portable power tools are used.

- Use only genuine Dynabrade replacement parts to insure quality. To order replacement parts, specify **Model #**, **Serial #** and **RPM** of your tool.

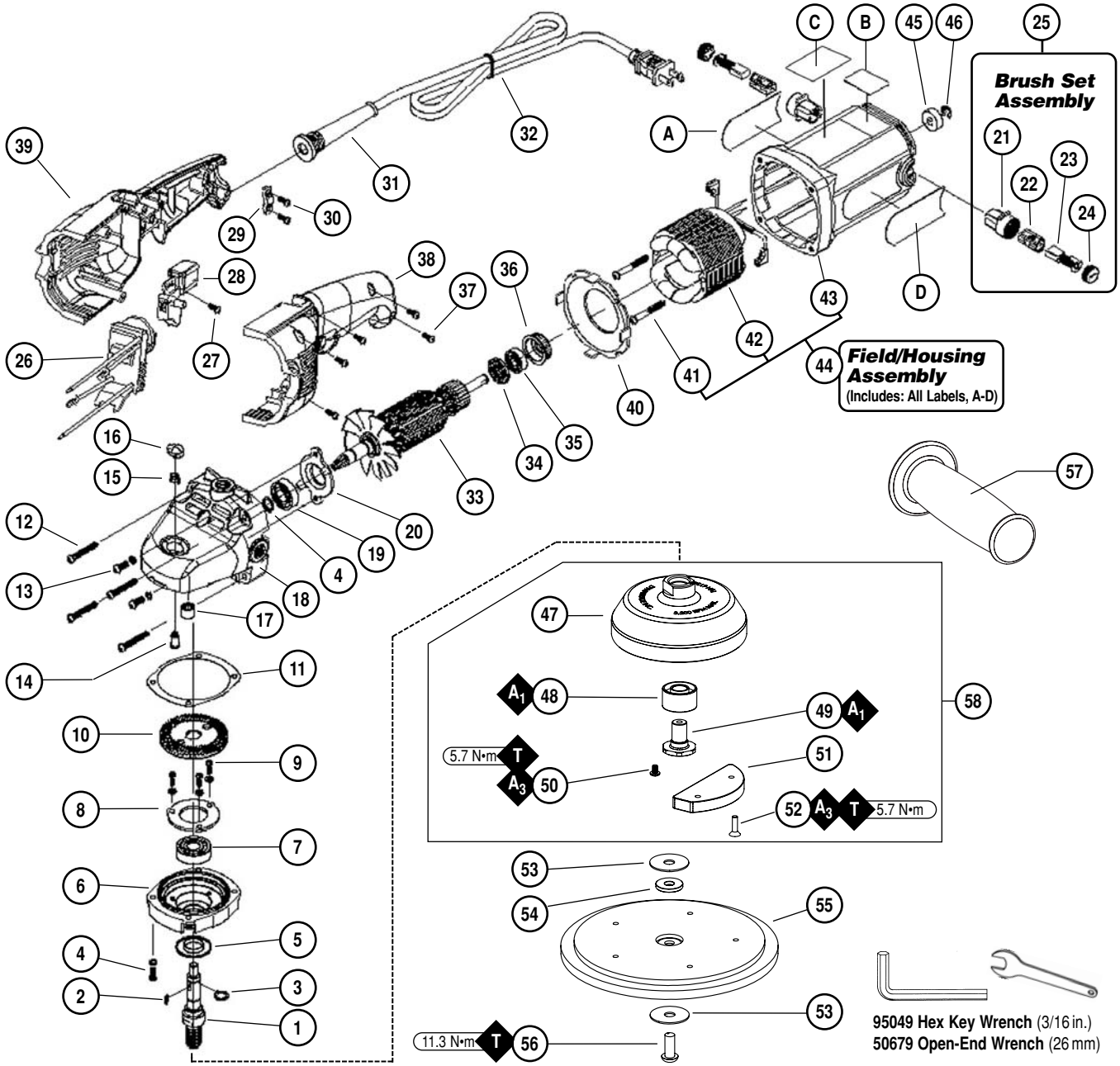
Routine Preventative Maintenance:

- Mineral spirits are recommended when cleaning the sanding heads. Do not use on electrical components or clean tool or parts with any solvents or oils containing acids, esters, ketones, chlorinated hydrocarbons or nitro carbons. Compressed air may be used to remove dirt from electrical components.
- DO NOT clean or maintain tools with chemicals that have a low flash point (example: WD-40®).
- Tool labels must be kept legible at all times, if not, reorder label(s) and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM. (See Assembly Breakdown)
- Visually inspect plugs and cords for frays, visible damage and signs of deterioration. Damaged or worn components must be repaired by a qualified repair personnel.
- Brush Changing – Unplug tool and remove brush caps and replace brushes. Replace brush caps. Brush changing – Change brushes every 225 hrs. to ensure proper tool function. After changing brushes, caps etc. it is recommended to replace the right angle gear grease with **95542 Grease**.
- **After maintenance is performed on tool check for excessive tool vibration.**
- **Check for excessive current leakage at 550 volts with a current leakage checker on all screws and the gear case, if the electrical components have been disturbed during repair.**

Handling and Storage of Tool and Accessories:

- DO NOT rest tool on pad. (See page 4 for photo examples.)
- Use of tool rests, hangers and/or balancers is recommended.
- DO NOT carry tool by cord.
- Protect abrasive accessories from exposure to water, solvents, high humidity, freezing temperature and extreme temperature changes.
- Store accessories in protective racks or compartments to prevent damage.

Complete 8" Random Orbital Polisher Assembly



Index Key

No.	Part #	Description	No.	Part #	Description	No.	Part #	Description
1	**89254**	Shaft	21	**89276**	Brush Holder (2)	41	**97596**	Screw
2	**89252**	Key	22	**89275**	Terminal (2)	42	**89295**	Field
3	**89259**	C-Ring (2)	23	**89274**	Brush (2)	43	**51718**	Housing
4	**89261**	Screw (4)	24	**89273**	Brush Cap (2)	44	**89196**	Field/Housing Assembly (Includes: All Labels, A-D)
5	**89251**	Dust Cap	25	**89272**	Brush Set Assembly (2)			
6	**89253**	Gear Box	26	**89277**	Speed Control	45	**89296**	Magnet
7	**89255**	Bearing	27	**89279**	Screw	46	**97599**	E-Ring
8	**89256**	Bearing Plate	28	**89278**	On/Off Switch	47	**61371**	Orbital Head (3/4" Orbit)
9	**89257**	Screw (3)	29	**89282**	Strain Relief	48	**56052**	Bearing
10	**89258**	Gear	30	**89283**	Screw (2)	49	**57069**	Balancer Shaft
11	**89260**	Washer	31	**89281**	Cord Guard	50	**95235**	Screw (3)
12	**89264**	Screw (2)	32	**89280**	Power Cord	51	**61373**	Counterweight
13	**89262**	Screw (4)	33	**89292**	Armature Assembly	52	**95217**	Screw (2)
14	**89263**	Shaft Lock Pin	34	**97592**	Washer	53	**94594**	Washer (2)
15	**89267**	Spring	35	**02649**	Bearing	54	**94595**	Spacer
16	**89268**	Button	36	**89293**	Bearing Holder	55	**50855**	8" Hook Face Pad
17	**89265**	Needle Bearing	37	**97589**	Screw (5)	56	**96168**	Screw
18	**89266**	Gear Box	38	**51728**	Rear Housing, Left	57	**18553**	Side Handle
19	**89270**	Bearing	39	**51719**	Rear Housing, Right	58	**61369**	Random Orbital Polisher Head Assembly
20	**89271**	Bearing Plate	40	**89294**	Plate			

KEY

A Adhesive:
A_1 = Loctite #609
A_3 = Loctite #242

T Torque: **N•m x 8.85 = In. - lbs.**

Definitions of Label Symbols

Symbol	Description
A	amperes
Hz	hertz
⧈	Class II Construction

Label Key

Item	Part #	Description
A	**89298**	Rating Label
B	**89284**	RPM Label
C	**89286**	Warning Label
D	**89287**	Logo

To order replacement parts, specify model number and serial number of your machine.

Handling and Storage of Tool

PROPERLY STORING THE TOOL WHEN NOT IN USE WILL ENSURE THE CONTINUED PERFORMANCE.

INCORRECT Resting Position

Note: Pad may deform and increase vibration of tool.

CORRECT Resting Position

Optional Accessories

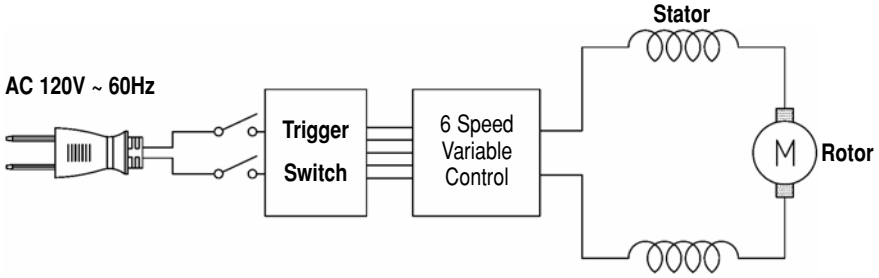
FIND THE MOST CURRENT OFFERING OF ACCESSORIES AND SUPPORT DOCUMENTS @ WWW.DYNABRADE.COM

95542 Grease 10 oz.

- High film strength; excellent resistance to water, steam, etc.
- Workable range 0˚ F to 300˚ F.

Accessories are available for polishing. Check our website and literature to review all items.

Wiring Diagram



Machine Specifications

Model Number	Motor RPM	Motor hp (w)	Voltage	Current	Phase	Frequency	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
51614	0 - 3,000	1.1 (835)	120 V (AC)	9 Amp	1	60 Hz	8.8 (39)	18-7/8 (480)	6-3/4 (172)

One Year Warranty

Following the reasonable assumption that any inherent defect which might prevail in a product will become apparent to the user within one year from the date of purchase, all equipment of our manufacture is warranted against defects in workmanship and materials under normal use and service. We shall repair or replace at our factory, any equipment or part thereof which shall, within one year after delivery to the original purchaser, indicate upon our examination to have been defective. Our obligation is contingent upon proper use of Dynabrade tools in accordance with factory recommendations, instructions and safety practices. It shall not apply to equipment which has been subject to misuse, negligence, accident or tampering in any way so as to affect its normal performance. Normally wearable parts such as bearings, brushes, gears, etc., are not covered under this warranty.

Reference Contact Information

1. **CSA International**
   8501 East Pleasant Valley Road
   Cleveland, Ohio 4431-5575
   Tel: 1 (216) 524-4990
   Fax: 1 (216) 642-3463

2. **Government Printing Office – GPO**
   Superintendent of Documents
   Attn. New Orders
   P.O. Box 371954
   Pittsburgh, PA 15250-7954
   Tel: 1 (202) 512-1803

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