

# Electric Right Angle Grinder

**Tool Manual – Safety, Operation and Maintenance**

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

## Models:

**40595 – 120V/60Hz**

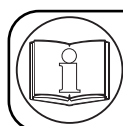
Accepts 4-1/2" Type 27 Grinding Wheels  
with 7/8" Arbor Hole



## ⚠ 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 Safety Requirements for the Use, Care and Protection of Abrasive Wheels – ANSI B7.1, 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 statutes, 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 sanding, 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 Electric Right Angle Grinders are used to grind; metal, wood, stone, fiberglass or plastic surfaces.

### 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. **Always use proper guard with grinding wheel.** A guard protects operator from broken wheel fragments.
2. **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.
3. **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.
4. **Be aware of the acceptable processing of the material you are grinding.** Certain material can create an explosive environment.  
(See Definitions of label symbols on pg. 3)

#### **TOOL DESCRIPTION**

**4-1/2" Sander Grinder** – Is a right angle electric hand tool with a 5/8"-11 spindle which includes: an on/off switch, side handle, a guard, and is equipped with a 8 ft. cord set.

#### **ASSEMBLY and OPERATION INSTRUCTIONS**

1. With power source disconnected from tool, securely fasten abrasive/accessory on tool with the wrench provided and the spindle lock on the gear case. The rated RPM of the accessory must be equal to or greater than the rated RPM of the tool.
2. To adjust the guard loosen the pinch screw P/N **89357** and position the guard between the operator and the wheel. Securely tighten the pinch screw.
3. **Check to make sure the switch is in the off position and connect power source to tool.**
4. Hold tool by the motor housing and the side handle. Do Not hold tool by head/housing assembly. Keep hands away from all grinding/sanding edges and moving parts.
5. Push, slide switch forward to start tool. Depress rear of slide switch to disengage tool.

#### **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.

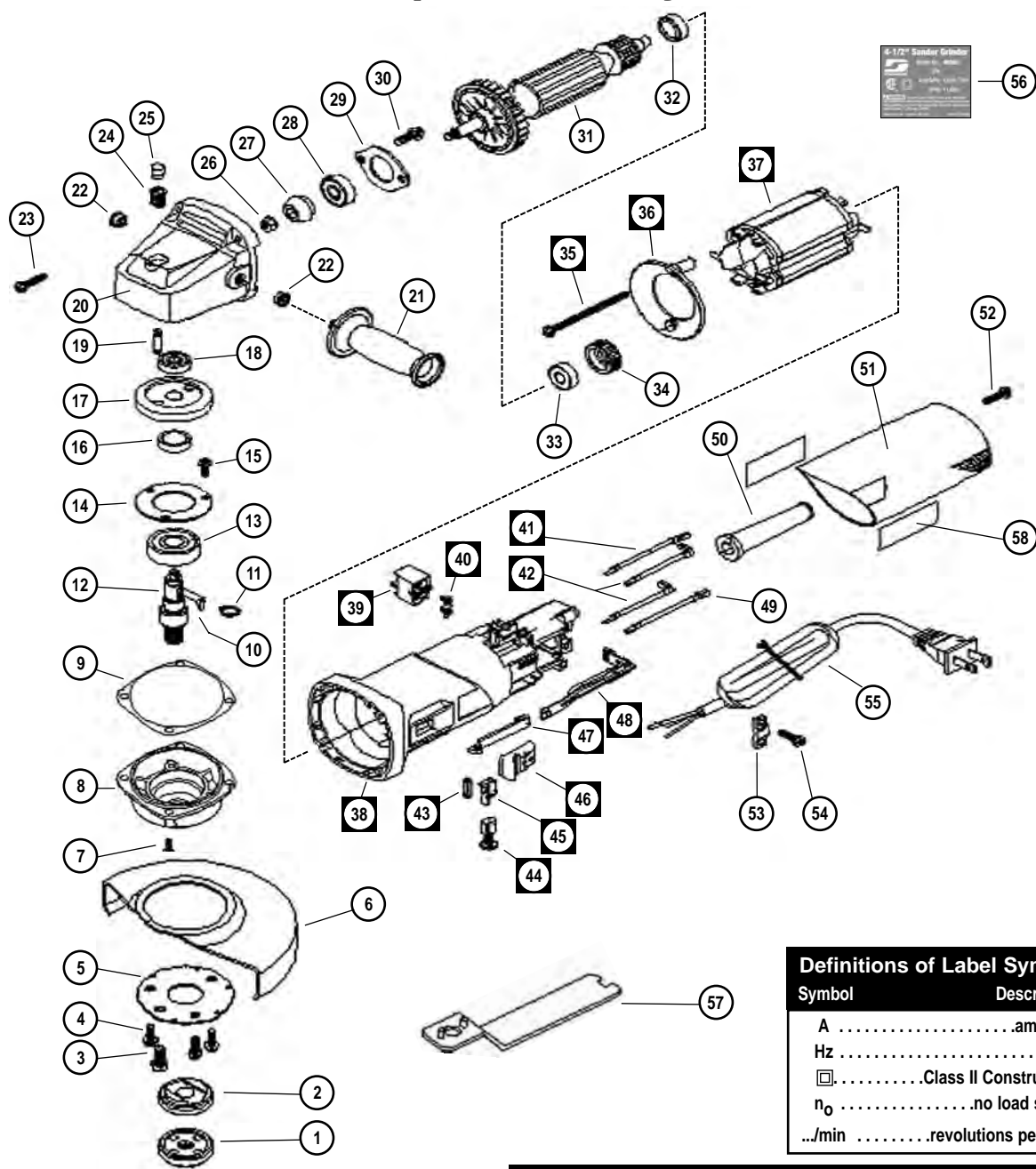
#### **Routine Preventative Maintenance:**

- Mineral spirits are recommended when cleaning the angle head. 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 label must be kept legible at all times, if not, reorder Tool Specification Label 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 replaced by qualified service personnel.
- **Brush Changing** – Unplug tool, cut both Dynabrade logo labels along housing joint, remove **89343** Screw and remove rear cover. Bend brass tab on brush holders up and remove brushes. Install new brushes, bend tabs down and replace rear cover. **Brush changing** – Change brushes every 100 hrs. to ensure proper tool function. After changing brushes, 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:**

- Use of tool rests, hangers and/or balancers is recommended. Bench mounts are **NOT** to be used.
- **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 Assembly



Symbol	Description
A	.....amperes
Hz	.....hertz
□	.....Class II Construction
n <sub>0</sub>	.....no load speed
.../min	.....revolutions per min.

Boxed index numbers represent 89326 Motor Housing Assembly.

### Index Key

No.	Part #	Description
1	89310	Flange
2	89356	Flange
3	89357	Screw
4	89307	Screw (3)
5	89358	Tension Washer
6	89359	Guard
7	89300	Screw (4)
8	89360	Gear Case Cover
9	89350	Shim
10	89303	Woodruff Key
11	89302	Retaining Ring
12	89361	Spindle (5/8"-11)
13	50677	Bearing
14	89306	Bearing Retainer
15	89307	Screw (3)
16	89308	Gear Spacer
17	89309	Spiral Bevel Gear
18	01015	Bearing
19	89311	Shaft Lock Pin
20	89314	GearBox Housing
21	89351	Side Handle
22	89312	Plug (2)
23	89313	Screw (4)
24	89315	Spring
25	89316	Button
26	89317	Nut
27	89318	Spiral Bevel Pinion
28	89319	Bearing
29	89320	Bearing Retainer
30	89321	Screw (2)
31	89322	Armature Assembly
32	89323	Washer
33	89324	Bearing
34	89325	Bearing Holder
35	89327	Screw (2)
36	89328	Fan Baffle
37	89329	Field
38	89330	Motor Housing
39	89331	Switch
40	89332	Screw (2)
41	89339	Wire - Black
42	89340	Wire - Red (2)
43	89335	Pin
44	89342	Brush (2)
45	89334	Brush Holder (2)
46	89336	On/Off Switch
47	89337	Drawbar
48	89338	Drawbar
49	89341	Wire - White
50	89346	Cord Protector
51	89348	Rear Cover
52	89343	Screw
53	89344	Cord Clamp
54	89349	Screw
55	89345	Power Cord
56	40403	Label
57	89305	Wrench
58	40402	Label (2)

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

## Wheel Mounting Instructions

### Type 27 Flanged Wheel (7/8" Dia. Arbor Hole)

1. With power source disconnected from the tool.
2. Clean spindle and flange mounting surfaces. Inspect for nicks, cuts and sharp edges.
3. Install drive flange with raised boss facing outward. Engage bottom flange slot and spindle flats.
4. Check for flange flatness and runout by rotating spindle and drive flange together.
5. Install Type 27 grinding wheel over spindle thread and over raised boss on flange.
6. **With 1/4" thick wheels & greater**, install outer flange nut with raised boss facing toward abrasive wheel, engage spindle lock and secure flange firmly against wheel. (See fig. 1)
7. **With 1/8" thick wheels & less**, install outer flange nut with raised boss facing away from abrasive wheel, engage spindle lock and secure flange firmly against wheel. (See fig. 2)
8. Check for wheel firmness by holding the spindle and pulling on the edge of the wheel in the tightening direction.

**Caution:** Over tightening the outer flange nut can cause damage to the wheel and/or flanges.

- Use only Dynabrade flanges: **89310** & **89356** Flanges.

Side View

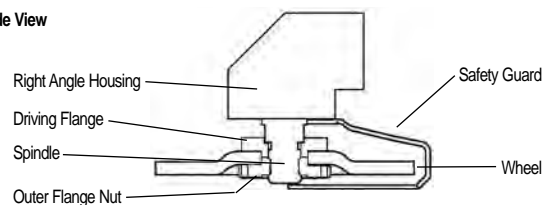


Fig. 1



Fig. 2

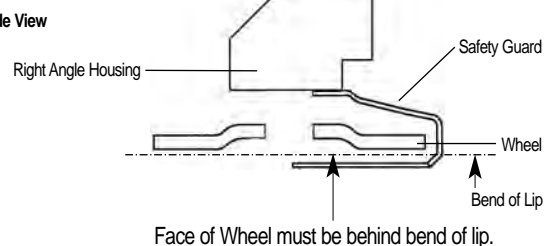


### Type 27 Hubbed Wheel (5/8"-11 Internal Affixed Flange)

1. With power source disconnected from the tool.
2. Some TYPE 27 grinding wheels come equipped with a disposable flange affixed to them. For use of this type wheel store both the driving flange and the outer flange nut provided with the tool for future use.
3. Engage spindle lock and thread grinding wheel to tool securely.
4. Visually inspect the grinding surface face relationship to the bend of the lip on the guard.
5. **ONLY USE** grinding wheel whose face of the wheel is behind bend of lip on guard. (See fig. 3)

Fig. 3

Side View



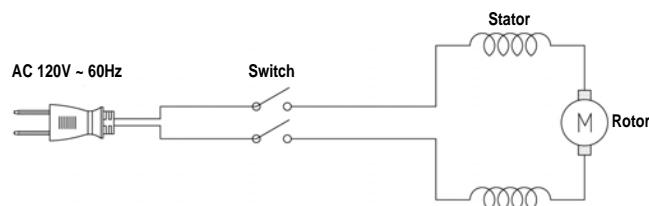
## One Year Warranty

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.

## Machine Specifications

Model Number	Motor RPM	Pad Diameter Inch (mm)	Voltage	Current	Phase	Frequency	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
40595	11,600	4-1/2 (114)	120 V (AC)	6.7 Amps	1	60 Hz	4 (1.8)	10-3/4 (274)	3-3/8 (86)

## Wiring Diagram



## Optional Accessories

FIND THE MOST CURRENT OFFERING OF ACCESSORIES AND SUPPORT DOCUMENTS @ [WWW.DYNABRADE.COM](http://WWW.DYNABRADE.COM)



### 95542 Grease 10 oz.

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

## 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

Visit Our Web Site: [www.dynabrade.com](http://www.dynabrade.com)

Email: [Customer.Service@Dynabrade.com](mailto:Customer.Service@Dynabrade.com)



**DYNABRADE, INC.**, 8989 Sheridan Drive • Clarence, NY 14031-1490 • Phone: (716) 631-0100 • Fax: 716-631-2073 • International Fax: 716-631-2524  
**DYNABRADE EUROPE S.à.r.l.**, Zone Artisanale • L-5485 Wormeldange—Haut, Luxembourg • Telephone: 352 76 84 94 1 • Fax: 352 76 84 95 1

©DYNABRADE, INC., 2005

PRINTED IN USA