Dynorbital-Spirit®

12,000 RPM Random Orbital Sander

Parts Page Reorder No. PD11•25
Effective June, 2011
Supersedes PD09•01

For Serial No. 09B1000G and Higher

SAFETY, OPERATION AND MAINTENANCE - SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

3/8" Orbit		3/16" Orbit		3/32" Orbit	
59000	59010	58054	59024	59030	59040
59003	59013	59015	59025	59033	59043
59004	59014	59018	59028	59034	59044
59005	59100	59019	59029	59035	59110
59008	59103	59020	59105	59038	59113
59009	59104	59023	59108	59039	59114
			59109		

DYNABRADE LIFETIME WARRANTY MADE IN USA

Find The Most Current Offering of Support Documents and Accessories at www.Dynabrade.com

⚠ WARNING

Read and understand this tool manual before operating your air tool. Follow all safety rules for the protection of operating personnel as well as adjacent areas. Always operate, inspect and maintain this tool in accordance with the American National Standards Institute (ANSI) Safety Code for Portable Air Tools – B186.1. For additional 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, European Committee for Standards (EN) Hand Held Non-Electric Power Tools – Safety Requirements and applicable State and Local Regulations.

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

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

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

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

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

Air line hazard, pressurized supply lines and flexible hoses can cause serious injury. Do not use damaged, frayed or deteriorated air hoses and fittings.

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.

SAFETY INSTRUCTIONS

Carefully Read and Understand the Sander/Polisher sections found in Tool Safety and Operating Guidelines (PN00001676) Before Handling or Using Tool.

Carefully Read all instructions before operating or servicing any Dynabrade® Abrasive Power Tool. Products offered by Dynabrade are not to be modified, converted or otherwise altered from the original design.

Tool Intent: Dynorbital-Spirit® Random Orbital Sander is used for sanding and finishing a variety of materials including wood, metal, plastic, fiberglass, solid surfaces, composites, rubber, glass and stone.

DO NOT USE Tool for Anything Other Than Its Intended Applications.

Training: Proper care, maintenance, and storage of your air tool will maximize tools performance and reduce chance for accident.

Employer's Responsibility: Provide operators with safety instructions and training for safe use of tools and accessories.

Report to Your Supervisor any Condition of the Tool, Accessories or Operation you Consider Unsafe.

MAINTENANCE INSTRUCTIONS

Important: To keep tool safe, a Preventative Maintenance Program is recommended. The program should included inspection of the tool and all related accessories and consumables, including air lines, pressure regulators, filters, oilers, etc. refer to ANSI B186.1 for additional maintenance information. If accessory or tool breakage occurs, investigate failure to determine the cause and correct before issuing tool for work. Use the following schedule as a starting point in developing a Preventative Maintenance Program. If tool does not operate properly (RPM, Vibration, Start/Stop) after these scheduled checks or at any time, the tool must be repaired and corrected before returning tool to use.

INSTALLATION

- To ensure long life and dependable service, use a Closed Loop Air System and Filter-Regulator-Lubricator as diagramed below.
- Each tool should have its own dedicated hose connected to an air supply manifold. Quick disconnects should be installed at the manifold in an effort to reduce contamination into the tool.
- It is strongly recommended that all Dynabrade rotary vane air tools be used with a Filter-Regulator-Lubricator to minimize the possibility of misuse due to unclean air, wet air or insufficient lubrication. Dynabrade recommends the following: **10681** Air Line Filter-Regulator-Lubricator — Provides accurate air pressure regulation, two-stage filtration of water contaminants and micro-mist lubrication of pneumatic components.
- Dynabrade recommends one drop of air lube per minute for each 20 SCFM (example: if the tool specification states 40 SCFM, set the drip rate on the filter-lubricator to 2 drops per minute) Dynabrade Air Lube (P/N **95842**: 1pt/473ml) is recommended.

MAINTENANCE SCHEDULE

Daily (every 8 hours):

- Inspect tool and accessories for damage or broken parts. Replace items as necessary to ensure proper operation and safety.
- Lubricate motor as recommended. Use Dynabrade Air Lube (P/N **95842**: 1pt/473ml) 10W/NR. (1 Drop per minute of air lube per 20 SCFM.)
- Check air line pressure with a gage. (MAX. 90 PSIG or 6.2 Bar operating pressure at the air inlet of the tool.)
- Right angled gear and wick system through gear case grease fitting with 3 plunges of gear oil (P/N **95848**) and grease gun (P/N **95541**). (Prime grease gun prior to greasing.)
- Check tool for proper operation: If operating improperly or demonstrates unusual vibration, the tool must be serviced and problem corrected before further use.

Every 20 Hours or Once a Week Which Ever Comes First:

- Check free speed of tool without the abrasive accessory mounted. Measure RPM (speed) with tachometer and with air pressure set at 90 PSIG while the tool is running. If a governed tool is operating at a higher speed than the RPM marked on the tool housing, the tool must be serviced and corrected before use. A non-governed tool may exceed the RPM marked on the tool by 10% when operated at free speed with no accessories.
- If tool is running fast look for worn, damaged or missing governors, air control rings and silencers. Special care must be taken when servicing governors and speed control devices. Injection molded governor assemblies are non-serviceable and must be replaced.
- If tool is running slow look for clogged inlet screen, air stream, silencer(s) or a malfunctioning governor (see concerns for servicing governors). Service as required.

Every 50 Hours:

- Lubricate planetary gears through gear case grease fitting with 3 plunges of grease (P/N **95542**) and grease gun (P/N **95541**). (Prime grease gun prior to greasing.)

REPAIR

- Use only genuine Dynabrade replacement parts to ensure quality. To order replacement parts, specify Model#, Serial# and RPM of your air tool.
- Mineral spirits are recommended when cleaning the tool and parts. Do not clean tool or parts with any solvents or oils containing acids, esters, ketones, chlorinated hydrocarbons or nitro carbons.
- DO NOT clean or maintain tools with chemicals that have a low flash point (example: WD-40®).
- Motor Tune-Up Kit are available (when applicable) which includes high wear and medium wear motor parts.
- Air tool markings must be kept legible at all times, if not, reorder housing and replace. User is responsible for maintaining specification information.
- After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the tool inlet and start the tool a few times to lubricate air motor. Verify RPM (per 20 hr maintenance schedule), vibration and operation.

HANDLING & STORAGE

- Use of tool rests, hangers and/or balancers is recommended.
- Protect tool inlet from debris (see Notice).
- DO NOT carry tool by air hose or near the tool throttle lever.
- Store accessories in protective racks or compartments to prevent damage.
- Follow the handling instructions outlined in the operating instructions when carrying the tool and when changing accessories.
- Protect accessories from exposure to water, solvents, high humidity, freezing temperature and extreme temperature changes.

END OF USE/DISPOSAL

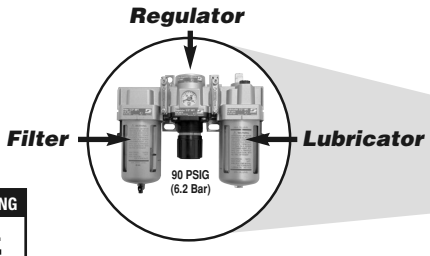
When tool has reached its end of useful service, disassemble tool into its primary components (i.e. steel, aluminum and plastic part) and recycle or discard per local, state and/or federal regulations as to not harm the environment.

NOTICE

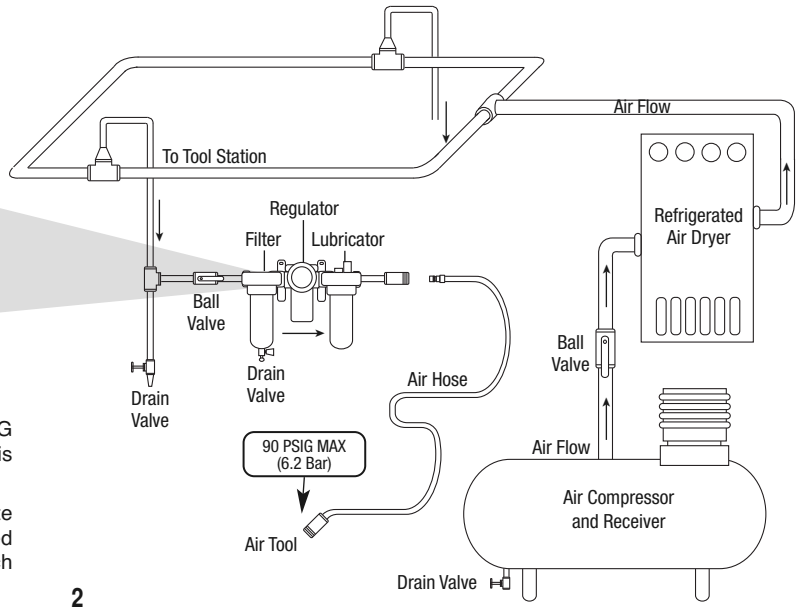
All Dynabrade motors use the highest quality parts and metals available and are machined to exacting tolerances. The failure of quality pneumatic motors can most often be traced to an unclean air supply or the lack of lubrication. Air pressure easily forces dirt or water contained in the air supply into motor bearings causing early failure. It often scores the cylinder walls and the rotor blades resulting in limited efficiency and power. Our warranty obligation is contingent upon proper use of our tools and cannot apply to equipment which has been subjected to misuse such as unclean air, wet air or a lack of lubrication during the use of this tool.

AIR SYSTEM

Closed Loop Pipe System, Sloped in Direction of Air Flow



LUBRICATOR SETTING
1 DROP/MIN.
20 SCFM



- Dynabrade Air Power Tools are designed to operate at 90 PSIG (6.2 Bar) maximum air pressure at the tool inlet, when the tool is running. Use recommended regulator to control air pressure.
- Ideally the air supply should be free from moisture. To facilitate removing moisture from air supply, the installation of a refrigerated air dryer after the compressor and the use of drain valves at each tool station is recommended.

Dynorbital-Spirit®
Complete Assembly

Models:

58054, 59000, 59003, 59004, 59005, 59008, 59009, 59010, 59013, 59014, 59015, 59018, 59019, 59020, 59023, 59024, 59025, 59028, 59029, 59030, 59033, 59034, 59035, 59038, 59039, 59040, 59043, 59044, 59100, 59103, 59104, 59105, 59108, 59109, 59110, 59113, 59114

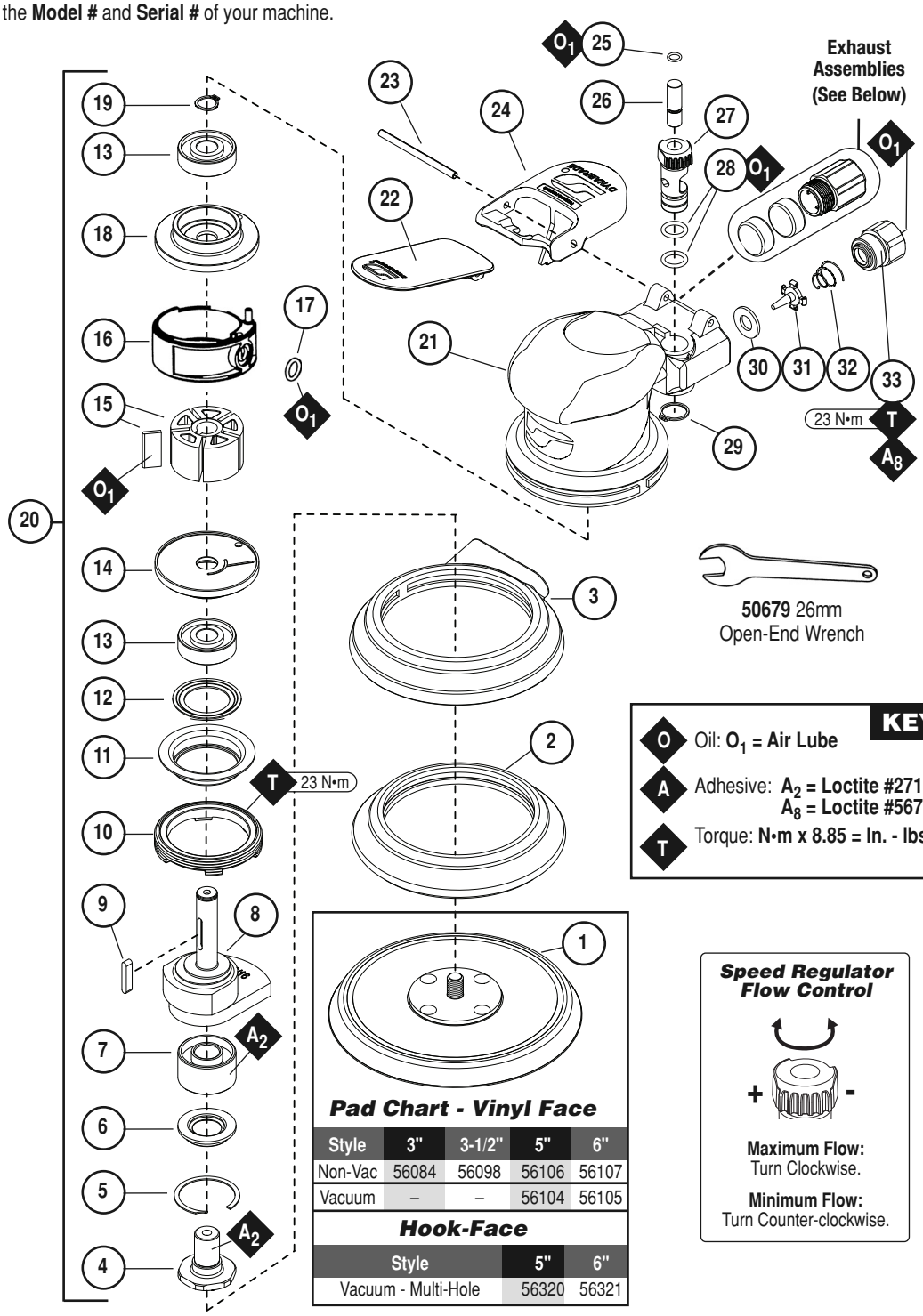
Note: To order replacement parts specify the **Model #** and **Serial #** of your machine.

Index Key

No.	Part #	Description
1		**Back-Up Pads** - See Chart Below
2		**Non-Vacuum Shroud**
	54458	3" & 3-1/2"
	56051	5" & 6"
3		**Vacuum Shroud**
	57084	3" & 3-1/2"
	69362	5"
	69363	6"
4	**57069**	Balancer Shaft
5	**95630**	Snap Ring
6	**59084**	V-Seal
7	**56052**	Bearing
8		**Motor Shaft Balancer**

Orbit	3"	3-1/2"	5"	6"
3/8"	59122	59070	59071	59072
3/16"	59120	59060	59061	59062
3/32"	59121	59065	59066	59067

9	**56047**	Key
10	**59058**	Lock Ring
11	**59057**	"Top Hat" Seal
12	**59083**	Felt
13	**58368**	Bearing (2)
14	**59076**	Front Bearing Plate
15	**57113**	Rotor/Blade Set
16	**59051**	Cylinder
17	**01024**	Seal
18	**59077**	Rear Bearing Plate
19	**98463**	Retaining Ring
20		**Drop-In Motor Assembly** (See Chart - Page 4)
21		**Housing** (See Chart - Page 4)
22	**69356**	Throttle Lever - 3/8"
	69360	Throttle Lever - 3/16"
	69357	Throttle Lever - 3/32"
23	**94590**	Pin
24	**57041**	Comfort Platform
25	**98459**	O-Ring
26	**58363**	Valve Stem
27	**59075**	Speed Regulator
28	**01025**	O-Ring (2)
29	**95697**	Retaining Ring
30	**01464**	Seal
31	**58365**	Tip Valve
32	**01468**	Spring
33	**01494**	Inlet Bushing
34	**69364**	Shroud Adapter
35	**57083**	Vacuum Adapter
36	**96197**	Dowel Pin
37	**57066**	Muffler Body
38	**95526**	O-Ring
39	**59088**	Vac Nozzle
40	**57067**	Vac Tube
41	**57093**	Vacuum Adapter
42	**56027**	Muffler Insert (2)
43	**69359**	Muffler Cap
44	**69272**	Muffler Assembly



50679 26mm Open-End Wrench

KEY

- O — Oil: O_1 = Air Lube
- A — Adhesive: A_2 = Loctite #271, A_8 = Loctite #567
- T — Torque: N•m x 8.85 = In. - lbs.

Pad Chart - Vinyl Face

Style	3"	3-1/2"	5"	6"
Non-Vac	56084	56098	56106	56107
Vacuum	–	–	56104	56105

Hook-Face

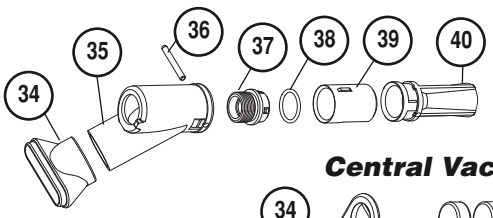
Style	5"	6"
Vacuum - Multi-Hole	56320	56321

Speed Regulator Flow Control

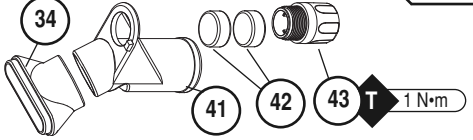
Maximum Flow: Turn Clockwise.

Minimum Flow: Turn Counter-clockwise.

Self Generated Vacuum

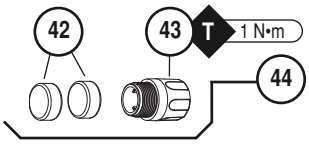


Central Vacuum



Non-Vacuum

Optional: 30 quantity Muffler Insert available, P/N **56054**.



LIFETIME WARRANTY

To validate Dynabrade Lifetime Warranty, you must register each tool at: www.dynabrade.com. Registration of each tool at website is required. Dynabrade will not honor Lifetime Warranty on unregistered tools. Please view the entire Lifetime Warranty Policy at : www.dynabrade.com.

MACHINE SPECIFICATIONS

Model Number	Vacuum Style	Tool Dia. Inch (mm)	Dia. Orbit Inch (mm)	Sound Level	Weight Pound (kg)	Length Inch (mm)
59000	Non-Vac	3-1/2 (89)	3/8 (10)	78 dB(A)	1.4 (.6)	6 (152)
59005	Non-Vac	5 (127)	3/8 (10)	82 dB(A)	1.5 (.7)	6-1/2 (165)
59010	Non-Vac	6 (152)	3/8 (10)	82 dB(A)	1.6 (.7)	7 (178)
59015	Non-Vac	3-1/2 (89)	3/16 (5)	80 dB(A)	1.4 (.6)	6 (152)
59020	Non-Vac	5 (127)	3/16 (5)	80 dB(A)	1.4 (.6)	6-1/2 (165)
59025	Non-Vac	6 (152)	3/16 (5)	81 dB(A)	1.5 (.7)	7 (178)
59030	Non-Vac	3-1/2 (89)	3/32 (2)	80 dB(A)	1.4 (.6)	6 (152)
59035	Non-Vac	5 (127)	3/32 (2)	79 dB(A)	1.4 (.6)	6-1/2 (165)
59040	Non-Vac	6 (152)	3/32 (2)	80 dB(A)	1.5 (.6)	7 (178)
59100	Non-Vac	3 (76)	3/8 (10)	78 dB(A)	1.4 (.6)	6 (152)
59105	Non-Vac	3 (76)	3/16 (5)	80 dB(A)	1.4 (.6)	6-1/2 (165)
59110	Non-Vac	3 (76)	3/32 (2)	79 dB(A)	1.3 (.6)	7 (178)
59003	Self-Gen	3-1/2 (89)	3/8 (10)	87 dB(A)	1.5 (.7)	8-1/2 (216)
59008	Self-Gen	5 (127)	3/8 (10)	87 dB(A)	1.6 (.7)	8-1/2 (216)
59013	Self-Gen	6 (152)	3/8 (10)	86 dB(A)	1.7 (.7)	9 (229)
59018	Self-Gen	3-1/2 (89)	3/16 (5)	87 dB(A)	1.4 (.6)	8-1/2 (216)
59023/58054	Self-Gen	5 (127)	3/16 (5)	85 dB(A)	1.5 (.7)	8-1/2 (216)
59028	Self-Gen	6 (152)	3/16 (5)	86 dB(A)	1.6 (.7)	9 (229)

Model Number	Vacuum Style	Tool Dia. Inch (mm)	Dia. Orbit Inch (mm)	Sound Level	Weight Pound (kg)	Length Inch (mm)
59033	Self-Gen	3-1/2 (89)	3/32 (2)	87 dB(A)	1.4 (.6)	8-1/2 (216)
59038	Self-Gen	5 (127)	3/32 (2)	84 dB(A)	1.5 (.6)	8-1/2 (216)
59043	Self-Gen	6 (152)	3/32 (2)	86 dB(A)	1.5 (.7)	9 (229)
59103	Self-Gen	3 (76)	3/8 (10)	87 dB(A)	1.5 (.7)	8-1/2 (216)
59108	Self-Gen	3 (76)	3/16 (5)	87 dB(A)	1.4 (.6)	8-1/2 (216)
59113	Self-Gen	3 (76)	3/32 (2)	87 dB(A)	1.4 (.6)	9 (229)
59004	Central	3-1/2 (89)	3/8 (10)	78 dB(A)	1.5 (.7)	7 (178)
59009	Central	5 (127)	3/8 (10)	82 dB(A)	1.5 (.7)	7-1/4 (184)
59014	Central	6 (152)	3/8 (10)	83 dB(A)	1.6 (.7)	7-3/4 (197)
59019	Central	3-1/2 (89)	3/16 (5)	80 dB(A)	1.4 (.6)	7 (178)
59024	Central	5 (127)	3/16 (5)	81 dB(A)	1.5 (.6)	7-1/4 (184)
59029	Central	6 (152)	3/16 (5)	82 dB(A)	1.6 (.7)	7-3/4 (197)
59034	Central	3-1/2 (89)	3/32 (2)	80 dB(A)	1.4 (.6)	7 (178)
59039	Central	5 (127)	3/32 (2)	81 dB(A)	1.4 (.6)	7-1/4 (184)
59044	Central	6 (152)	3/32 (2)	81 dB(A)	1.5 (.7)	7-3/4 (197)
59104	Central	3 (76)	3/8 (10)	78 dB(A)	1.5 (.6)	7 (178)
59109	Central	3 (76)	3/16 (5)	80 dB(A)	1.4 (.6)	7-1/4 (184)
59114	Central	3 (76)	3/32 (2)	80 dB(A)	1.4 (.6)	7-3/4 (197)

Motor .25 hp (186 W) • Motor 12,000 RPM • Tool Height 3-1/2" (89 mm) • Pad Thread 5/16"-24 Female
Air Inlet Thread 1/4" NPT • Hose I.D. Size 1/4" (6 mm) • Air Flow Rate 14 SCFM/396 LPM • Air Pressure 90 PSIG (6.2 Bar)

Sound Level is the pressure measurement according to the method outlined in ISO regulation ISO-15744

REPLACEMENT HOUSINGS

Model #	Housing #	Model #	Housing #	Model #	Housing #	Model #	Housing #
59000	56620	**59018**	56630	**59035**	56641	**59109**	56665
59003	56621	**59019**	56631	**59038**	56642	**59110**	56666
59004	56622	**59020**	56632	**59039**	56643	**59113**	56667
59005	56623	**59023**	56633	**59040**	56644	**59114**	56668
59008	56624	**59024**	56634	**59043**	56645		
59009	56625	**59025**	56635	**59044**	56646		
59010	56626	**59028**	56636	**59100**	56647		
59013	56627	**59029**	56637	**59103**	56648		
59014	56628	**59030**	56638	**59104**	56649		
58054	56669	**59033**	56639	**59105**	56650		
59015	56629	**59034**	56640	**59108**	56664		

OPTIONAL ACCESSORIES

96510 Tune-Up Kit

- Tune-Up Kit contains high and medium wear parts.

Drop-in Motor Assemblies

Orbit	3"	3-1/2"	5"	6"
3/8"	59488	59450	59453	59456
3/16"	59489	59451	59454	59457
3/32"	59490	59452	59455	59458

Note: 59058 Lock Ring **ONLY** included with 3/8" Orbit Drop-in Motors.

Non-Vacuum to Vacuum Conversion Kits

Original Non-Vac Tool	Converts to	Kit Part Number
3-1/2" (89mm)	Self-Generated Vac-Ready	57118
3-1/2" (89mm)	Central Vac-Ready	57119
5" (127mm)	Self-Generated Vac-Ready	57120
5" (127mm)	Central Vac-Ready	57121
6" (152mm)	Self-Generated Vac-Ready	57122
6" (152mm)	Central Vac-Ready	57123

REFERENCE CONTACT INFORMATION

1. **American National Standards Institute – ANSI**
   1899 L Street, NW
   11th Floor
   Washington, DC 20036
   Tel: 1 (212) 642-4900
2. **Government Printing Office – GPO**
   Superintendent of Documents
   Attn. New Orders
   P.O. Box 371954
   Pittsburgh, PA 15250-7954
   Tel: 1 (202) 512-1803
3. **Power Tool Institute, Inc.**
   P.O. Box 818
   Yachata, Oregon 97498-0818
   Tel: 1 (503) 547-3185
4. **European Committee for Standardization**
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   B - 1050 Brussels, Belgium

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