

Dynorbital® Extreme

Random Orbital Sander Series with Speed Control Lever

Safety, Operation and Maintenance – Save This Document and Educate All Personnel

Model	Pad Type	Pad Dia.	Orbit Dia.	RPM	Vacuum
X51S	Vinyl-Face	5" (125 mm)	3/16" (5 mm)	12,000	Non-Vacuum
X51VS					Central Vacuum
X51VHS					Central Vacuum
X51HS	Non-Vacuum				
X61VHS	Hook-Face	6" (150 mm)	3/32" (2.5 mm)		Central Vacuum
X61HS					Non-Vacuum
X52VHS				Central Vacuum	
X52HS	Non-Vacuum				
X62VHS	Hook-Face	6" (150 mm)	3/32" (2.5 mm)	Central Vacuum	
X62HS				Non-Vacuum	



X51S


LIMITED
LIFETIME
WARRANTY


SANDER / POLISHER


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⚠ 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 Requirements for abrading materials with coated abrasive systems – ANSI B7.7, Compressed Air and Gas Institute (CAGI) Safety Code for Portable Air Tools – B186.1, Code of Federal Regulation – CFR 29 Part 1910, International Organization for Standardization (ISO) Hand Held Non-Electric Power Tools – Safety Requirements ISO 11148-8 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 statutes, 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 and OPERATING INSTRUCTIONS

 Carefully Read and Understand the General and 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® Extreme Random Orbital Sanders are intended for use in industrial applications and used only by skilled, trained professionals in accordance with the instructions in this manual. This pneumatic tool is designed to be used for sanding and finishing a variety of materials including wood, metal, plastic, fiberglass, solid surfaces, composites, rubber, glass and stone. Use in any other manner or with other accessories could lead to unsafe operating conditions.

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 include inspection of the tool and all related accessories and consumables, including air lines, pressure regulators, filters, oilers, etc. (refer to CAGI 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 (FRL) as diagramed below.
- Each tool should have its own dedicated hose connected to an air supply FRL. Quick disconnects should be installed at the FRL in an effort to reduce contamination into the tool. Securely affix all fittings and hose assemblies.
- 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: **10690** 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 1 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). **95842** Dynabrade Air Lube is recommended.

MAINTENANCE SCHEDULE

Maintenance schedules depend on the type and style of tool. Refer to page 3 to reference symbols associated with specific maintenance items/areas. Match maintenance schedules accordingly. See page 4 for any additional maintenance information.

Note: Turbine style air motors do not require oil.

Daily (every 8 hours):

- Inspect tool and accessories for damage or broken parts. Replace items as necessary to ensure proper operation and safety.
- **O** Lubricate motor as recommended. Use **95842** Dynabrade Air Lube (10W/NR). Apply 1 drop/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.)
- **W** Lubricate wick system and right angle gears through gear case fitting. Apply 3 plunges of **95848** Gear Oil. Use **95541** Lubricant Gun (Prime lubricant gun before use).
- 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/Once a Week (which ever comes first):

- **G** For tools without "wick system", lubricate right angle gears through lubricant fitting. Apply 1 plunge of **95544** Grease. Use **95541** Lubricant Gun. (Prime lubricant gun before use).
- Measure RPM (speed) by setting air pressure to 90 PSIG (6.2 Bar) at tool inlet, without accessory mounted, while the tool is running. Using

tachometer, check spindle speed of the tool. Unless otherwise stated the no-load speed may not exceed the rated speed. If tool speed exceeds maximum rated RPM, service as required and correct before use.

- If tool is running too fast: look for worn, damaged or missing governor, air control rings and silencer(s). Service as required.
- If tool is running too slow: look for malfunctioning governor, clogged inlet screen, silencer(s) or air stream. Service as required.

Note: Special care must be taken when servicing governors. Refer to specific tool manual for governor instructions and/or speed control devices. Governor assemblies made from molded plastic components are non-serviceable and must be replaced.

Every 50 Hours:

- **G** Lubricate planetary gears through gear case fitting with 3 plunges of **95544** Grease. Use **95541** Lubricant Gun. (Prime lubricant gun before use).

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.
- A Motor Tune-Up Kit is available 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.

- **O** After maintenance is performed on tool, add a few drops of **95842** Dynabrade Air Lube 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 below).
- **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) and recycle or discard per local, state and/or federal regulations as to not harm the environment.

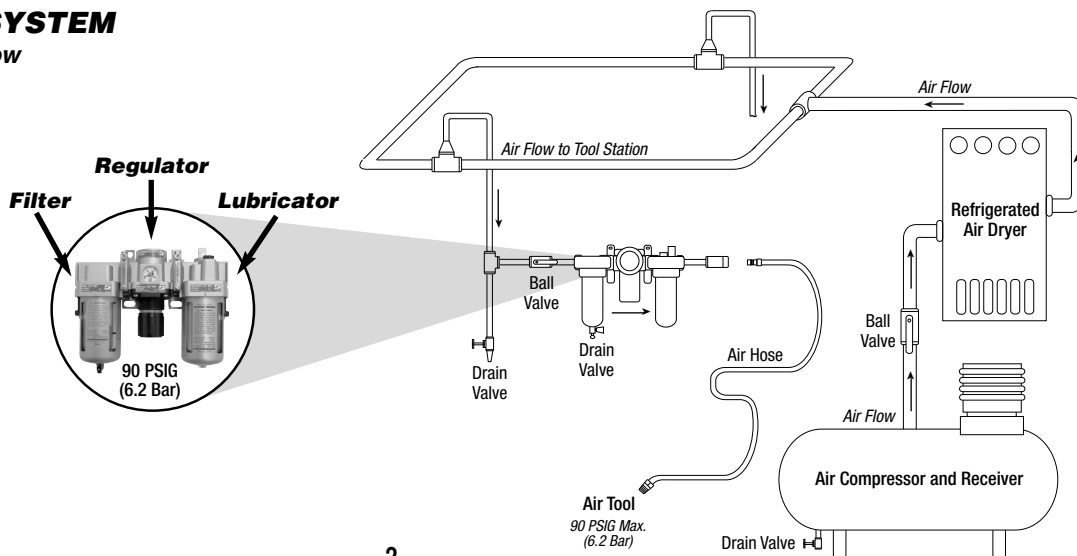
NOTICE

All Dynabrade air motors use the highest quality parts available and are manufactured to exacting tolerances. Air motor failures are often traced to lack of lubrication or unclean air supply. Compressed air can force dirt and other contaminants into motor bearings causing early failure. Contaminants can score cylinder wall and vanes resulting in reduced efficiency and power. Our warranty obligation is contingent upon proper use of our tools. Air motors which have been subjected to misuse, contaminated air or lack of lubrication will void warranty.

CLOSED LOOP AIR SYSTEM

Sloped in Direction of Air Flow

- 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.



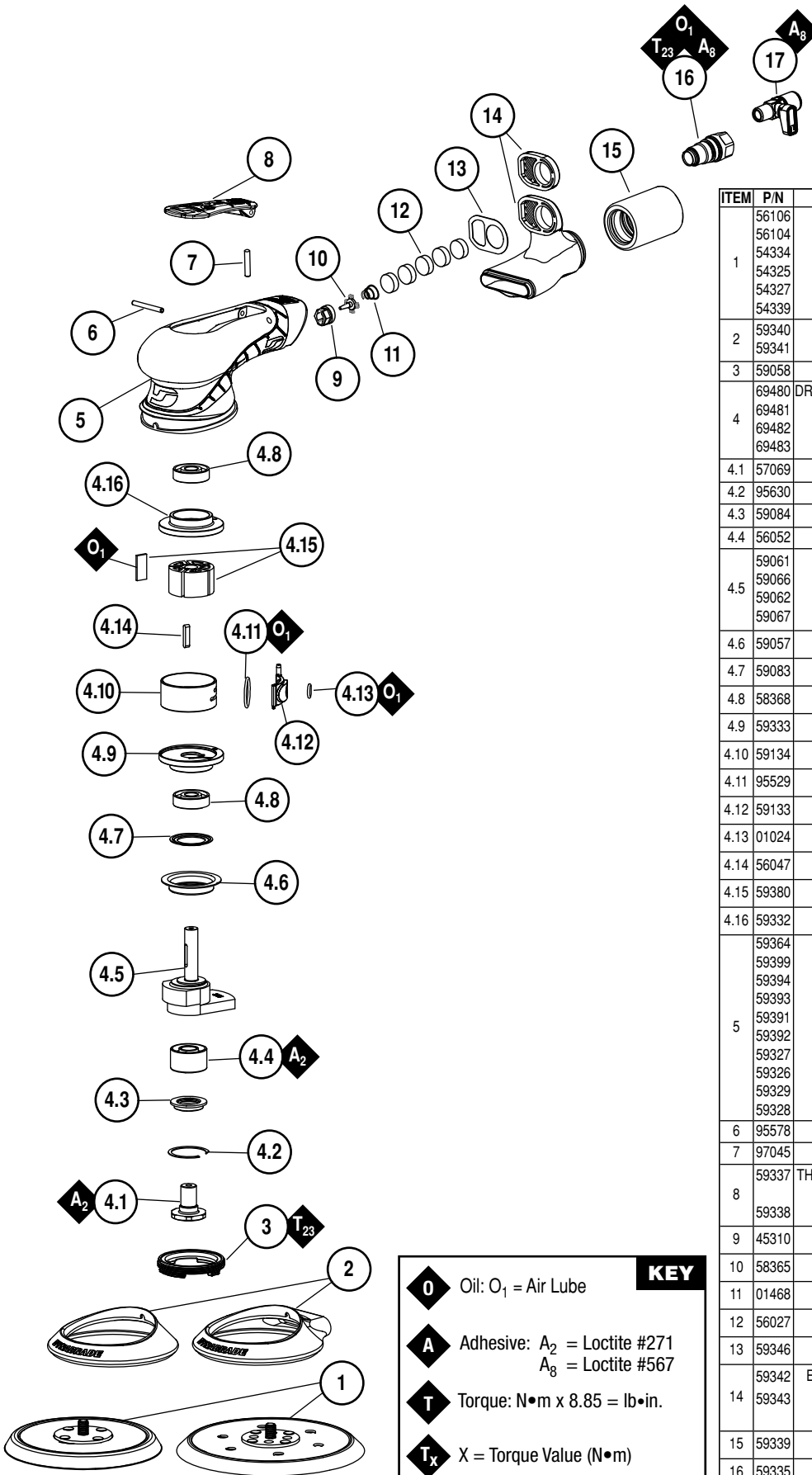
Lubricator Setting

1 Drop/Minute per 20 SCFM

Models

X51S, X51VS, X51VHS, X51HS, X52VHS, X52HS - 5" Diameter
 X61VHS, X61HS, X62VHS, X62HS - 6" Diameter

Dynorbital® Extreme
 Complete Assembly



ITEM	P/N	DESCRIPTION	QTY.
1	56106	PAD – X51S,	1
	56104	PAD – X51VS,	
	54334	PAD – X51VHS, X52VHS	
	54325	PAD – X51HS, X52HS	
	54327	PAD – X61HS, X62HS	
54339	PAD – X61VHS, X62VHS		
2	59340	SHROUD – X51S, X51HS, X61HS, X52HS, X62HS	1
	59341	SHROUD – X51VS, X51VHS, X61VHS, X52VHS, X62VHS	
3	59058	LOCK RING	1
4	69480	DROP-IN MOTOR ASSEMBLY – X51S, X51VS, X51VHS, X51HS	1
	69481	DROP-IN MOTOR ASSEMBLY – X52VHS, X52HS	
	69482	DROP-IN MOTOR ASSEMBLY – X61VHS, X61HS	
	69483	DROP-IN MOTOR ASSEMBLY – X62VHS, X62HS	
4.1	57069	SHAFT	1
4.2	95630	SNAP RING	1
4.3	59084	SEAL	1
4.4	56052	BEARING	1
4.5	59061	SHAFT BALANCER – X51S, X51VS, X51VHS, X51HS	1
	59066	SHAFT BALANCER – X52VHS, X52HS	
	59062	SHAFT BALANCER – X61VHS, X61HS	
	59067	SHAFT BALANCER – X62VHS, X62HS	
	59057	FRONT BEARING SEAL	
4.6	59057	FRONT BEARING SEAL	1
4.7	59083	FELT WASHER	1
4.8	58368	BEARING	2
4.9	59333	FRONT BEARING PLATE	1
4.10	59134	CYLINDER SLEEVE	1
4.11	95529	O-RING	1
4.12	59133	CYLINDER SLEEVE ADAPTER	1
4.13	01024	O-RING	1
4.14	56047	KEY	1
4.15	59380	ROTOR/VANE ASSEMBLY	1
4.16	59332	REAR BEARING PLATE	1
5	59364	HOUSING – X51S	1
	59399	HOUSING – X51VS	
	59394	HOUSING – X51VHS	
	59393	HOUSING – X51HS	
	59391	HOUSING – X61VHS	
	59392	HOUSING – X61HS	
	59327	HOUSING – X52VHS	
	59326	HOUSING – X52HS	
	59329	HOUSING – X62VHS	
	59328	HOUSING – X62HS	
6	95578	PIN	1
7	97045	PLUNGER PIN	1
8	59337	THROTTLE LEVER – X51S, X51VS, X51VHS, X51HS, X61VHS, X61HS	1
	59338	THROTTLE LEVER – X52VHS, X52HS, X62VHS, X62HS	
9	45310	TIP VALVE SEAL	1
10	58365	TIP VALVE	1
11	01468	SPRING	1
12	56027	MUFFLER INSERT	5
13	59346	GASKET	1
14	59342	EXHAUST COVER – X51S, X51HS, X61HS, X52HS, X62HS	1
	59343	EXHAUST COVER – X51VS, X51VHS, X61VHS, X52VHS, X62VHS	
15	59339	VACUUM CUFF – X51VS, X61VHS, X52VHS, X62VHS	1
16	59335	INLET BUSHING	1
17	95756	FLOW CONTROL	1
—	50679	OPEN END WRENCH – 26mm	1

KEY

- O** Oil: O₁ = Air Lube
- A** Adhesive: A₂ = Loctite #271
A₈ = Loctite #567
- T** Torque: N•m x 8.85 = lb•in.
- T_x** X = Torque Value (N•m)

Always follow adhesive manufacturers cleaning and priming recommendations.

LIMITED LIFETIME WARRANTY

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

LIMITED
LIFETIME
WARRANTY

MACHINE SPECIFICATIONS

Model	Pad Dia.	Orbit Dia.	Power	Air Consumption	Weight	Length	Height
X51S	5" (125 mm)	3/16" (5 mm)	.3 hp (224 W)	19 SCFM (538 LPM)	1.9 lb. (0.9 kg)	8.1" (205 mm)	3.7" (95 mm)
X51VS					2.05 lb. (0.9 kg)	9.1" (230 mm)	
X51VHS					2.05 lb. (0.9 kg)	9.1" (230 mm)	
X51HS					1.9 lb. (0.9 kg)	8.1" (205 mm)	
X61VHS	6" (150 mm)				2.13 lb. (1.0 kg)	9.5" (242 mm)	
X61HS					2.09 lb. (1.0 kg)	8.6" (218 mm)	
X52VHS	5" (125 mm)	3/32" (2.5 mm)			2.01 lb. (0.9 kg)	9.0" (229 mm)	
X52HS					1.85 lb. (0.8 kg)	8.0" (204 mm)	
X62VHS	6" (150 mm)		2.09 lb. (1.0 kg)	9.5" (242 mm)			
X62HS			1.93 lb. (0.9 kg)	8.6" (217 mm)			

Additional Specifications: Air Inlet Thread 1/4" NPT • Hose I.D. 1/4" (6 mm) • Pad Thread 5/16"-24 Male
Visit dynabrade.com for your model's current vibration and sound data.

OPTIONAL ACCESSORIES



Drop-In Motor Assemblies			
Orbit Dia.	5" Dia. Models	6" Dia. Models	
3/16"	69480	69482	
3/32"	69481	69483	



Tune-Up Kit

- Contains high and medium wear parts.

Part No. 96576



Whip Hose

- 1" diameter conductive vacuum hose with Swivel Cuff 31916 for attachment to our Raptor Vac® standard 1-1/4" hose
- 5/16" diameter air line with (2) 1/4" NPT male fittings, 1/4" female Mega Flow Plug and is protected by a braided hose sleeve.

Part No. 31917: 2 meter



Dynabrade Air Lube

- Formulated for pneumatic equipment.
- Absorbs up to 10% of its weight in water.
- Prevents rust and formation of sludge.
- Keeps pneumatic tools operating longer with greater power and less down time.

Part No. 95842: 1 pt. (473 ml)

Part No. 95843: 1 gal. (3.8 L)

CLEAN AIR SOLUTIONS

Dynorbital® Extreme, is compatible with Dynabrade Raptor Vac® systems using 31917 Whip Hose or standard Dynabrade Raptor Vac® hose assemblies.



REFERENCE CONTACT INFORMATION

American National Standards Institute (ANSI)

25 West 43 Rd St., 14th Floor • New York, NY 10036 • Tel: 1 (202) 293-8020

Compressed Air & Gas Institute

1300 Sumner Ave. • Cleveland, OH 44115-2851
Tel: 1 (216) 241-7333 • Fax: (216) 241-0105

European Committee for Standardization

Rue de Stassart 36 • B - 1050 Brussels, Belgium

International Organization of Standards

Case postale 56 • CH-1211 Geneva 20
Tel: + 41 22 749 01 11 • Fax: + 41 22 749 09 47

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