

# 3-1/2" Dynorbital Supreme® ROS

## 12,000 RPM Dynabrade Sanders for Robots

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

Model	Pad Dia.	Orbit Dia.	Description
56844BK	3-1/2" (89 mm)	3/32" (2.5 mm)	Kit
56844B			Tool Only
56804BK		3/16" (5 mm)	Kit
56804B			Tool Only

**SANDER / POLISHER**



**LIMITED  
LIFETIME  
WARRANTY**

Find The Most Current Offering of Support Documents and Accessories at [www.Dynabrade.com](http://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 Requirements for the Use, Care and Protection of Abrasive Wheels – ANSI B7.1, and 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 series 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 Grinder 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® Supreme Random Orbital Sander is intended for use as a robot end-effector and to be integrated into a robotic system for industrial applications only. Use as a hand tool can cause serious injury. It is the responsibility of the System Integrator to perform an independent risk assessment when using this robotic tool in applications. The risk assessment must consider the risks of the entire robot application, including the robot, robotic tool, workpieces, fixturing, and all tasks associated with the application. The System Integrator should consult with the user, identify reasonably foreseeable hazards and apply appropriate risk reduction measures where necessary.

**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.
- 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.

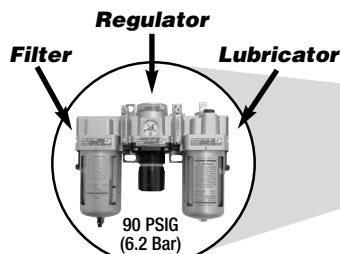
## NOTICE

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

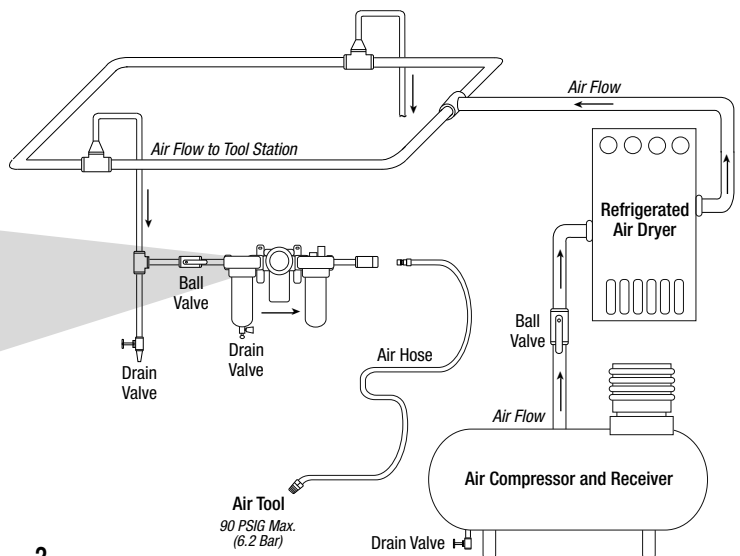
### Sloped in Direction of Air Flow

- 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



# **ASSEMBLY INSTRUCTIONS FOR DYNABRADE ROBOT END-EFFECTORS**

**TYPE:** Sander

**MODELS:** 56819B, 56854B, 56830B, 56863B, 56894B, 57814B, 57404B, 56844B, 56804B, 56884B, 56819BK, 56854BK, 56830BK, 56863BK, 56894BK, 57814BK, 57404BK, 56804BK, 56844BK, 56884BK

## **IMPORTANT SAFETY INSTRUCTIONS:**

- This tool is intended for use as a robot end-effector and to be integrated into a robotic system for industrial applications only. Use as a hand tool can cause serious injury.
- It is the responsibility of the System Integrator to perform an independent risk assessment when using this robotic tool in applications. The risk assessment must consider the risks of the entire robot application, including the robot, robotic tool, workpieces, fixturing, and all tasks associated with the application. The System Integrator should consult with the user, identify reasonably foreseeable hazards and apply appropriate risk reduction measures where necessary.

## **ANNEX 1 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS TO BE ADDRESSED BY THE SYSTEM INTEGRATOR:**

### **1.2.4.3 EMERGENCY STOP**

- The emergency stop must stop the supply of compressed air to the tool.

### **1.2.6 FAILURE OF THE POWER SUPPLY**

- The compressed air supply control must be reset after power failure to prevent unexpected tool start.

### **1.3.3 RISKS DUE TO FALLING OR EJECTED OBJECTS**

- Ejected abrasive can cause serious impact injury and must be appropriately guarded against.

### **1.3.7 RISKS RELATED TO MOVING PARTS**

- Contact with moving abrasive belts or rotating abrasive disks can cause abrasion or entrapping injury and must be prevented.

### **1.5.13 EMISSIONS OF HAZARDOUS MATERIALS AND SUBSTANCES**

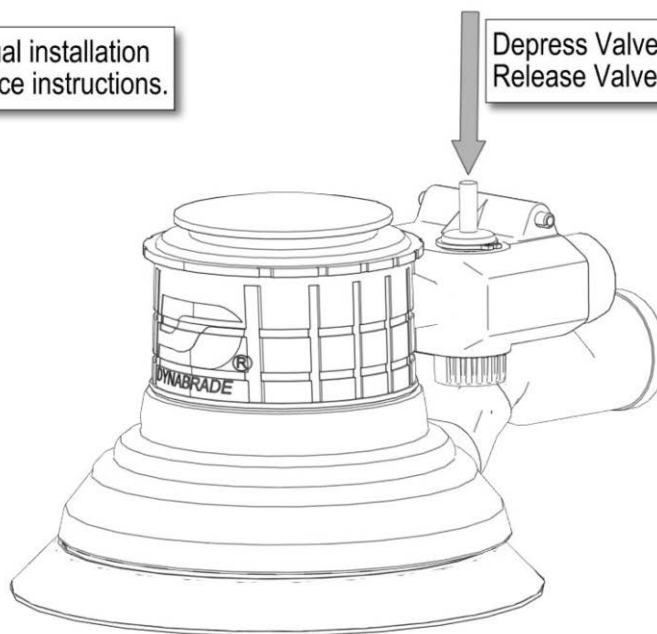
- Contact with sparks or inhalation of hazardous or toxic dust generated by grinding or sanding applications can cause injury and must be prevented.

## Robotic Tools

56819B, 56854B, 56830B, 56863B, 56894B, 57814B, 57404B, 56844B, 56804B, 56884B

See Tool Manual installation  
and maintenance instructions.

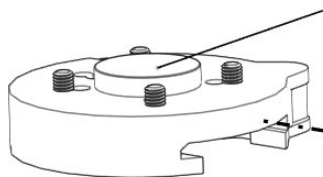
Depress Valve Stem to operate tool.  
Release Valve Stem to stop tool.



## Robotic Tool Kits

56819BK, 56854BK, 56830BK, 56863BK, 56894BK, 57814BK, 57404BK, 56844BK, 56804BK, 56884BK

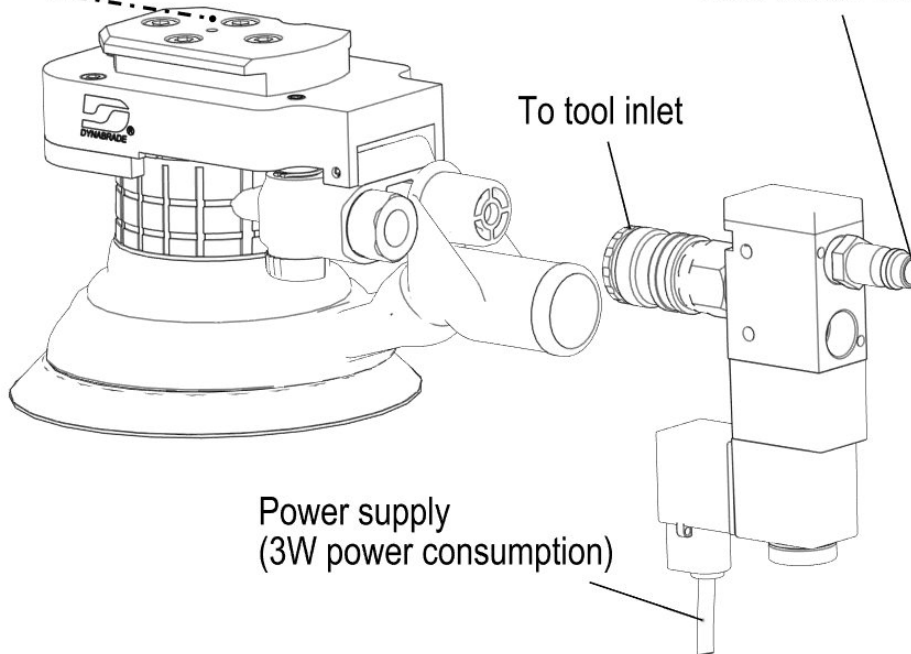
ISO 9409-1-50-4-M6 Flange



Air supply (90 psi  
max. at tool inlet)

To tool inlet

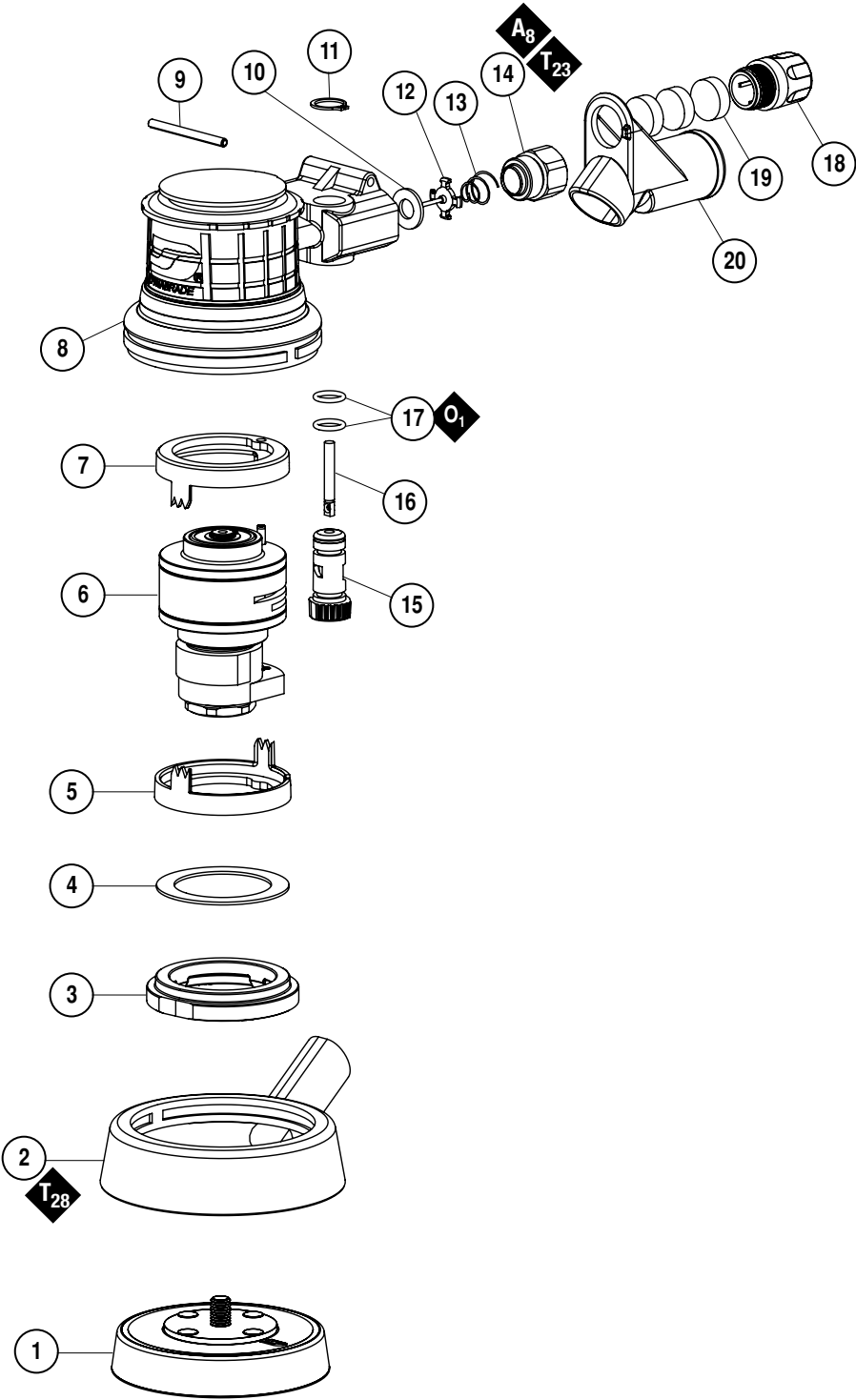
Power supply  
(3W power consumption)



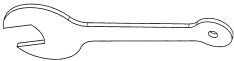
Models

56844B - 3-1/2" Dia., 3/32" Orbit, 12,000 RPM, Tool Only  
56804B - 3-1/2" Dia., 3/16" Orbit, 12,000 RPM, Tool Only

3-1/2" Dynorbital Supreme® ROS  
12,000 RPM Dynabrade Sanders for Robots



ITEM	P/N	DESCRIPTION	QTY.
1	54311	PAD - 3-1/2" X 5/8", NON-VAC., SHORT NAP, SOFT	1
2	57084	SHROUD	1
3	57059	LOCK RING	1
4	95973	SPACER	1
5	57055	RING - FRONT	1
6	57155 57011	MOTOR ASSY. - MODEL 56844B MOTOR ASSY. - MODEL 56804B	1
7	57054	RING - REAR	1
8	57722B 57283B	HOUSING - MODEL 56844B HOUSING - MODEL 56804B	1
9	95979	PIN - SPRING	1
10	95697	RETAINING RING	1
11	01464	SEAL - INLET BUSHING	1
12	01472	TIP VALVE	1
13	01468	SPRING - CONICAL	1
14	01494	INLET BUSHING	1
15	57064	SPEED REGULATOR	1
16	01477	VALVE STEM	1
17	01025	O-RING	2
18	69359	MUFFLER BODY	1
19	56027	INSERT - MUFFLER	3
20	57093	CENTRAL VACUUM ADAPTER	1
-	50679	26 MM WRENCH	



50679 26mm Wrench

0

Oil: O<sub>1</sub> = Air Lube

A

Adhesive: A<sub>8</sub> = Loctite #567

T

Torque: N•m x 8.85 = lb•in.

T<sub>x</sub>

X = Torque Value (N•m)  
(N•m x 8.85 = lb•in.)

KEY

Always follow adhesive manufacturers  
cleaning and priming recommendations.

**Models**

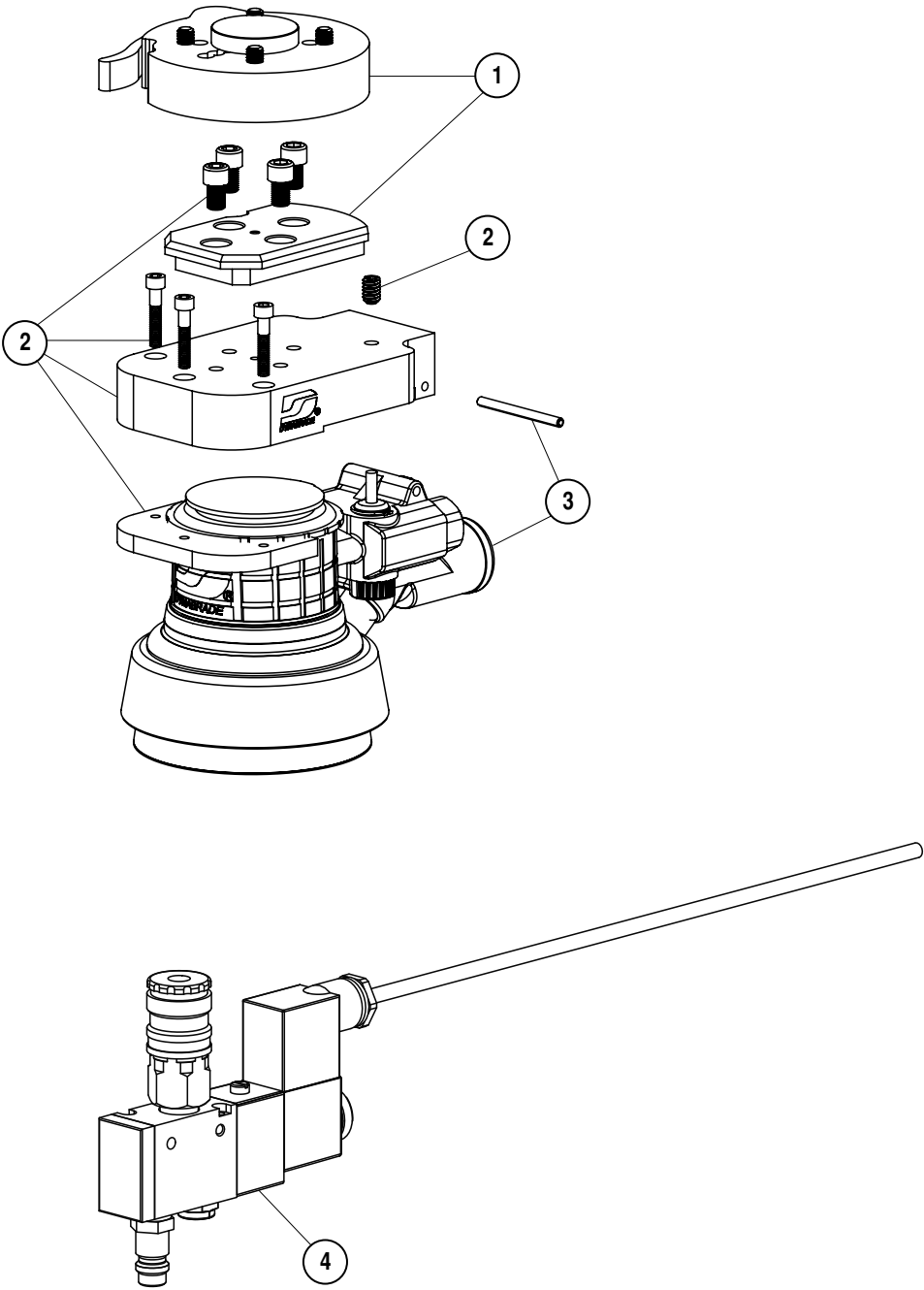
56844BK - 3-1/2" Dia., 3/32" Orbit, 12,000 RPM, Kit  
56804BK - 3-1/2" Dia., 3/16" Orbit, 12,000 RPM, Kit

**3-1/2" Dynorbital Supreme® ROS**  
12,000 RPM Dynabrade Sanders for Robots

ITEM	P/N	DESCRIPTION	QTY
1	58160	TOOL CHANGER ASSEMBLY	1
2	58140	ROS END EFFECTOR	1
3	56844B 56804B	TOOL - MODEL 56844BK TOOL - MODEL 56804BK	1
4	58150	VALVE ASSEMBLY, SOLENOID	1
-	50679	26 MM WRENCH	1



50679 26mm Wrench



## LIMITED LIFETIME WARRANTY

Dynabrade portable pneumatic power tools are rigorously inspected and performance tested in our factory before shipping to our customers. If a Dynabrade tool develops a performance problem and an inherent defect is found during normal use and service, Dynabrade will warrant this tool against defects in workmanship and materials for the limited lifetime of the tool.

## MACHINE SPECIFICATIONS

Model	Pad Diameter	Orbit Diameter	Speed	Power	Air Consumption	Weight	Length	Height
56844BK	3-1/2" (89 mm)	3/32" (2.5 mm)	12,000 RPM	.28 hp (209 W)	18 SCFM (510 LPM)	3.3 lb. (1.5 kg)	6.8" (173 mm)	4.9" (124 mm)
56844B		3/16" (5 mm)				1.9 lb. (.86 kg)		3.8" (96 mm)
56804BK						3.3 lb. (1.5 kg)		4.9" (124 mm)
56804B						1.9 lb. (.86 kg)		3.8" (96 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](http://dynabrade.com) for your model's current vibration and sound data.

## OPTIONAL ACCESSORIES



### 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)



### Repair Collar

**Part No. 57092**



### Lock Ring Wrench

**Part No. 56058**

## REFERENCE CONTACT INFORMATION

American National Standards Institute (ANSI)

[www.ansi.org](http://www.ansi.org)

Compressed Air & Gas Institute (CAGI)

[www.cagi.org](http://www.cagi.org)

European Committee for Standardization (PNEUROP)

[www.pneurop.org](http://www.pneurop.org)

International Organization of Standards (ISO)

[www.iso.org](http://www.iso.org)

U.S. Government Publishing Office (GPO)

[www.gpo.gov](http://www.gpo.gov)

**DYNABRADE, INC.**

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