

Dynorbital® Supreme

12,000 RPM Air Powered Random Orbital Sander

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

3/16 Orbit

56800 - 3-1/2" Non-Vacuum
 56803 - 3-1/2" Vac-Ready
 56804 - 3-1/2" Central Vac-Ready
 56815 - 5" Non-Vacuum
 56818 - 5" Vac-Ready
 56819 - 5" Central Vac-Ready
 56826 - 6" Non-Vacuum
 56829 - 6" Vac-Ready
 56830 - 6" Central Vac-Ready

3/32 Orbit

56840 - 3-1/2" Non-Vacuum
 56843 - 3-1/2" Vac-Ready
 56844 - 3-1/2" Central Vac-Ready
 56850 - 5" Non-Vacuum
 56853 - 5" Vac-Ready
 56854 - 5" Central Vac-Ready
 56859 - 6" Non-Vacuum
 56862 - 6" Vac-Ready
 56863 - 6" Central Vac-Ready



! 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 Safety 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.

SAFETY LEGEND

	! WARNING Read and understand tool manual before work starts to reduce risk of injury to operator, visitors, and tool.	
	! WARNING Eye protection must be worn at all times, eye protection to conform to ANSI Z87.1.	
	! WARNING Respiratory protection to be used when exposed to contaminants that exceed the applicable threshold limit values required by law.	
	! WARNING Practice safety requirements. Work alert, have proper attire, and do not operate tools under the influence of alcohol or drugs.	
	! 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 Air line hazard, pressurized supply lines and flexible hoses can cause serious injury. Do not use damaged, frayed or deteriorated air hoses and fittings.	

SAFETY INSTRUCTIONS

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 alerted from the original design without expressed written consent from Dynabrade, Inc.

Tool Intent: Dynorbital® Supreme 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.

This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.

Training: Proper care, maintenance, and storage of your tool will maximize its performance.

- Employer's Responsibility – Provide Dynorbital® Supreme operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Abrasive/accessory RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting an accessory, visually inspect for defects. Do not use defective accessories.
- Follow tool specifications before choosing size and type of accessory.
- Only use recommended fittings and air line sizes. Air supply hoses and air hose assemblies must have a minimum working pressure rating of 150 PSIG (10 bars, g) or 150 percent of the maximum pressure produced in the system, whichever is higher. (See Tool Machine Specifications Table.)

OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: accepted eye, face, respiratory, hearing and body protection.

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

(continued on next page)

OPERATING INSTRUCTIONS (continued)

- Keep hand and clothing away from working end of the air tool.

Operation: Be sure that any loose clothing, hair and all jewelry is properly restrained.

- Secure inlet bushing on air tool with a wrench before attempting to install the air fitting to avoid damaging housing assembly.
- Check tool RPM (speed) with tachometer with air pressure set at 90 PSIG while the tool is running. If tool is operating at a higher speed than the RPM marked on the tool housing, or operating improperly, the tool must be serviced and corrected before use.

Caution: Tool RPM must never exceed abrasive/accessory RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

- With power source disconnected from air tool, mount recommended accessory into collet assembly.
- Connect air tool to power source. Be careful NOT to depress throttle lever in the process. **Do not expose air tool to inlet pressure above 90 PSIG or (6.2 Bars).**

Caution: After installing the accessory, before testing or use and/or after assembling tool, the Dynorbital-Spirit™ must be started at a reduced speed to check for good balance. Gradually increase tool speed. DO NOT USE if tool vibration is excessive. Correct cause, and retest to insure safe operation.

- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.
- Use a vise or clamping device to hold work piece firmly in place.
- Do not apply excessive force on tool or apply "rough" treatment to it.
- Always work with a firm footing, posture and proper lighting.

Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Vacuum Conversion Instructions

To Disassemble:

1. Disconnect tool from power source. Invert machine and secure in vise, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
2. Remove sanding pad with **50679** (26 mm) Open-End Wrench (supplied with sander) and lip-seal shroud from housing.
3. Remove **56028** Muffler Cap and **56027** Muffler Insert (2) from **57066** Muffler Body. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), remove muffler body and **57065** Cone Muffler from housing (not applicable for Self-Generated Vac to Central Vac).

Non-Vacuum to Vacuum Conversion Kits

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

Non-Vac to Self-Generated Vac for Hook-Up to Self-Contained Dust Collection System

1. Attach **57083** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing. Press cone muffler out of muffler body.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench, attach the muffler body and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert dowel pin in holes until it is centered. Attach sanding pad, attach machine to portable dust collection system.

Non-Vac to Central Vac

1. Attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing.
2. Using a 12 mm hex wrench, attach the muffler body and cone muffler to the housing through the central vacuum adapter.
3. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap.
4. Attach weight-mated vacuum sanding pad with **50679** (26 mm) Open-End Wrench. Attach machine to central vacuum system.

Self-Generated Vac to Central Vac

1. Remove **96197** Dowel Pin with an 1/8" drive pin. Remove **57067** Vacuum Tube from **57083** Vacuum Adapter by turning it clockwise while pulling backward.
2. Using a small flat screwdriver, pry vacuum nozzle until it is loose and then remove it by using two fingers to push and pull it until it hits the "legs" on vacuum adapter. Place vacuum tube back into vacuum adapter far enough to push the "legs" back then push vacuum nozzle and vacuum tube out the rest of way.
3. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), remove the **57066** Muffler Body and **95526** O-Ring from the housing through the adapter. Remove the o-ring from the muffler body. Press cone muffler into the muffler body.
4. Remove **57083** Vacuum Adapter and attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure that the protrusions on the overskirt or shroud are aligned with the notches on the housing.
5. Using a 12 mm hex wrench, attach the muffler body and o-ring to the housing through the central vacuum adapter.
6. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap. Attach sanding pad.

Central Vac to Self Generated Vac

1. Remove **57093** Central Vacuum Adapter and put the **57083** Vacuum Adapter in its place.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), attach the muffler body and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert **96197** Dowel Pin in holes until it is centered. Attach machine to portable dust collection system.

Maintenance 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 air 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: **11405** Air Filter-Regulator-Lubricator (FRL) – Provides accurate air pressure regulation and two stage filtration of water contaminants. Operates 40 SCFM/1,133 LPM @ 100 PSIG with 3/8" NPT female ports.
- 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**: 1 pt 473 ml) is recommended.

Routine Preventative Maintenance: Check free speed of Dynorbital-Spirit™ using a tachometer.

- 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®).
- A Drop-In Motor and Tune-Up Kit are available, see specific kit number on page 9.
- Air tool stampings must be kept legible at all times, if not, reorder and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM.
- Blow air supply hose out prior to initial use.
- Visually inspect air hoses and fittings for frays, visible damage and signs of deterioration. Replace damaged or worn components.
- Refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for safety information.

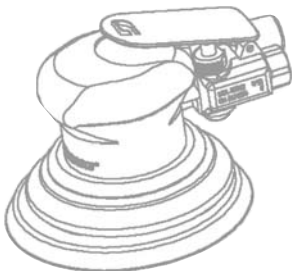
After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the air line and start the tool a few times to lubricate air motor. Check for excessive tool vibration.

Handling and Storage:

- Protect tool inlet from debris (See Notice Below).
- **DO NOT** carry tool by air hose.
- 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.

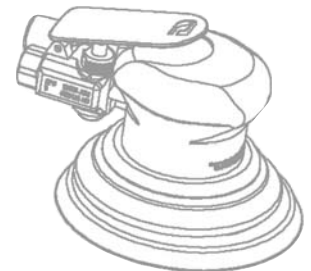
Notice

All Dynabrade motors use the highest quality parts and materials 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.



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, contact wheels, rotor blades, etc., are not covered under this warranty.



Dynorbital® Supreme Complete Assembly

KEY

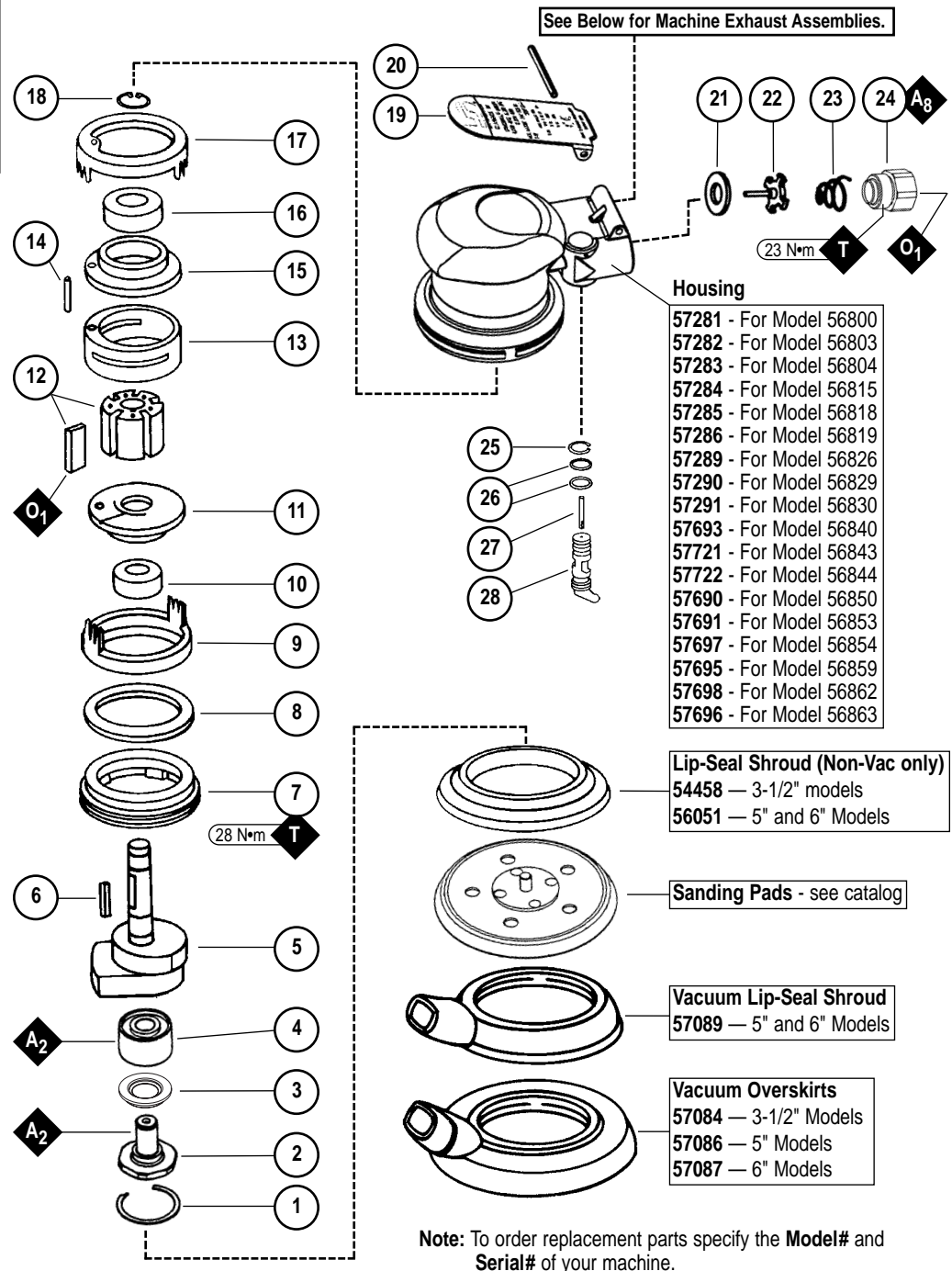
O Oil: O₁ = Air Lube

A Adhesive:
A₂ = Loctite #271
A₈ = Loctite #567

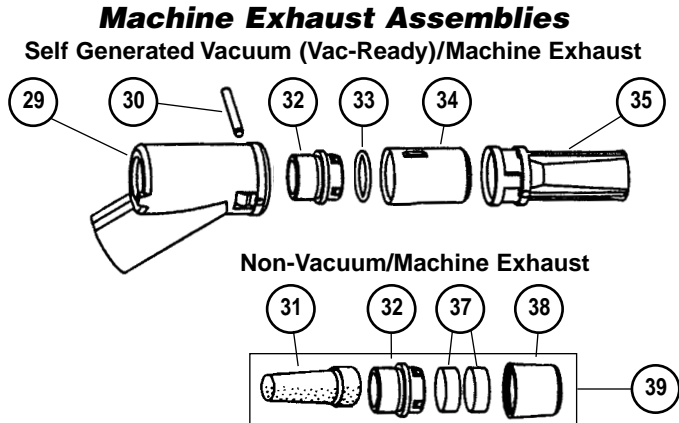
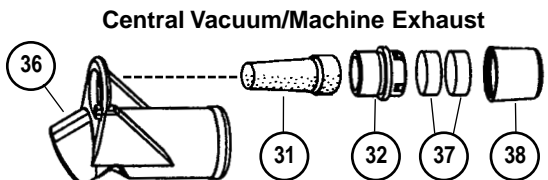
T Torque: N•m x 8.85 = In. - lbs.

Index Key

No.	Part #	Description
1	95630	Snap Ring
2	57069	Balancer Shaft
3	59084	V-Seal
4	56052	Balancer Bearing
5	Motor Shaft Balancer	
	57060	3-1/2" (3/16 Orbit)
	57061	5" (3/16 Orbit)
	57062	6" (3/16 Orbit)
	57159	3-1/2" (3/32 Orbit)
	57160	5" (3/32 Orbit)
	57162	6" (3/32 Orbit)
6	56047	Key
7	57059	Lock Ring
8	95973	Washer
9	57055	Front Ring
10	57088	Bearing
11	57057	Front Bearing Plate
12	57113	Blade/Rotor Set
13	57058	Cylinder Assembly (Incl. 95971 Line-up Pin)
14	95971	Line-up Pin
15	57056	Rear Bearing Plate
16	01206	Bearing
17	57054	Rear Ring
18	95626	Snap Ring
19	Lever	
	56846	For 3/16" Models
	56847	For 3/32" Models
20	95979	Pin
21	01464	Seal
22	01472	Tip Valve
23	01468	Conical Spring
24	01494	Inlet Bushing
25	95697	Retaining Ring
26	01025	O-Ring (2)
27	01477	Valve Stem
28	57064	Speed Regulator or Recessed Speed Reg.
29	57083	Vacuum Adapter
30	96197	Dowel Pin
31	57065	Cone Muffler
32	57066	Muffler Body
33	95526	O-Ring
34	57068	Vac Nozzle
35	57067	Vac Tube
36	57093	Vacuum Adapter
37	56027	Muffler Insert (2)
38	56028	Muffler Cap
39	57112	Muffler Assembly



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



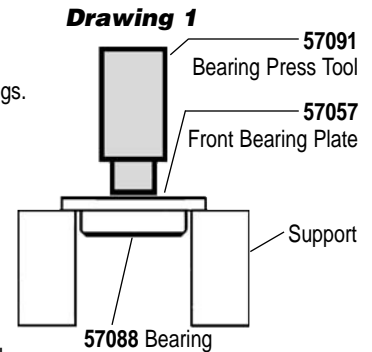
Motor Assembly/Disassembly Instructions – Dynorbital® Supreme

Important: Manufacturers warranty is void if tool is disassembled before warranty expires.

A complete Repair Kit, part number **57098**, is available which includes special tools for correct disassembly/assembly of tool.

To Disassemble

1. Disconnect tool from power source.
2. Invert machine and secure in vice, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
3. Remove sanding pad with 26 mm open-end wrench (supplied with sander) and shroud or overskirt.
4. Insert **56058** Lock Ring Tool (supplied in **57098** Repair Kit) into corresponding tabs of lock ring and unscrew. Motor may now be lifted out for service.
Note: To get it started try using 26 mm wrench for leverage or rock the motor back and forth to loosen up the rings.
5. Remove lock ring, washer, front ring and rear ring from motor. Upper motor may now be disassembled. Remove **95626** Snap Ring.
6. Remove the rear plate and the cylinder assembly by securing the cylinder in a bearing separator gripped on the cylinder exhaust and extra pocket area. Push the motor shaft balancer through the bearing.
7. Remove the rotor, vanes and rotor key from the motor shaft balancer. Remove the front plate using a small (#2) arbor press. Support the edges of the front plate while pressing on the small end of the motor shaft balancer.
8. a.) If, during step 7, the front plate and **57088** Bearing remain together, press **57088** Bearing out of the front plate using **57091** Press Tool (supplied in **57098** Repair Kit) as shown in **Drawing 1**.
b.) If, during step 7, the front plate and **57088** Bearing remains on the motor shaft balancer, it can be removed with a bearing separator.
9. Remove **01206** Bearing from the rear plate by using a bearing press tool.
10. Disassemble the balancer assembly as follows:
 - a.) Place motor shaft assembly into a soft jaw vise. Using a thin screwdriver, pick out the end of **95630** Snap Ring and peel out. This will loosen the balancer assembly.
 - b.) Screw the threaded portion of the **56056** Bearing Puller (supplied in **57098** Repair Kit) into the **57069** Balancer Shaft and heat the outside of the motor shaft balancer to approximately 200° F (approximately 10 seconds with a propane torch). Now, using the slider weight, pull the assembly out.
 - c.) Press off **56052** Bearing with a bearing separator and remove bearing seal and bearing shield.
11. If during step 10, the **56052** Bearing remains in the motor shaft balancer, it can be removed by the heating the shaft balancer again and using either an inside bearing puller or a blind hole bearing puller.

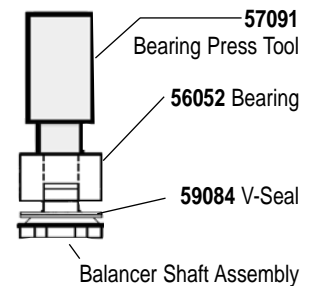


To Assemble:

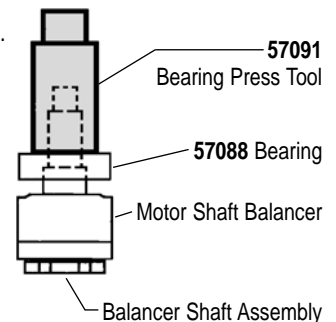
Important: Be certain parts are clean and in good repair before assembling.

1. Assemble the balancer assembly as follows:
 - a.) Install **95630** Snap Ring onto balancer shaft. Install **59084** V-Seal with the flat side facing up.
 - b.) Apply 1 drop of #271 Loctite® (or equivalent), spread over several places around the inside diameter of the **56052** Bearing and the outside diameter of the **57069** Balancer Shaft.
 - c.) Use the small end of the **57091** Bearing Press Tool and arbor press to install the **56052** Balancer Bearing with the seal side facing the v-seal. **Note:** The inner race of the bearing must sit against the step on the balancer shaft. (Shown in **Drawing 2**.)
2. Place the motor shaft balancer in a soft jaw vise with large end-up.
3. Apply 1 drop of #271 Loctite® (or equivalent) and spread over several places around the outside diameter of the **56052** Bearing and slide balancer assembly into the motor shaft balancer until **56052** Bearing is firmly seated at bottom. Squeeze **95630** Snap Ring into groove in motor shaft balancer to complete the assembly. Remove from vise.
4. Press **57088** Bearing onto the motor shaft balancer down to the shoulder as shown in **Drawing 3**.
5. Press **57057** Front Bearing Plate onto **57088** Bearing as shown in **Drawing 4** and check for smooth rotation.
6. Place the **57090** Rotor and **56047** Rotor Key on the motor shaft balancer. Place the **56073** Vanes into the rotor slots. **Note:** Vanes should be lightly lubricated with Dynabrade Air Lube P/N **95842** (or equivalent) before installation.
7. Place **57058** Cylinder Assembly over rotor. The “short” line-up pin goes toward the front plate.
8. Place **57056** Rear Bearing Plate (with **01206** Rear Bearing pressed into place) over shaft and “long” end of line-up pin and press fit in place as shown in **Drawing 5**.
9. Place **95626** Snap Ring in groove.
10. Place **57054** Rear Ring over the rear plate and line-up pin. Turn the motor over and place **57055** Front Ring over the front plate making sure that the “legs and fingers” on the front and rear rings line-up. Also the small cut-outs on both rings should line-up with the square holes in the cylinder/end plate assembly.
11. Place **95973** Washer and **57059** Lock Ring onto the front ring with 1 drop of pneumatic tool oil spread between the washer and lock ring.
12. Secure motor housing in vise, using **57092** Collar or padded jaws. Spread 2-3 drops of pneumatic tool oil around the housing bore for ease of insertion of motor assembly. Slide motor assembly into secured housing.
Note: Be certain line-up pin enters the pocket in the bottom of the housing and the “legs” of the rings stay in line.
13. Tighten lock ring with **56058** Lock Ring Tool to 28 N•m/250 in. - lbs. Attach shroud or overskirt and weight-mated sanding pad.

Drawing 2



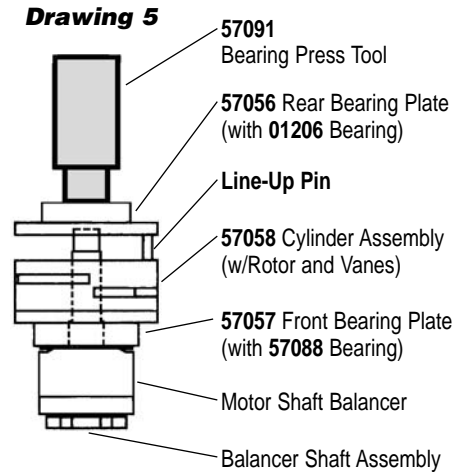
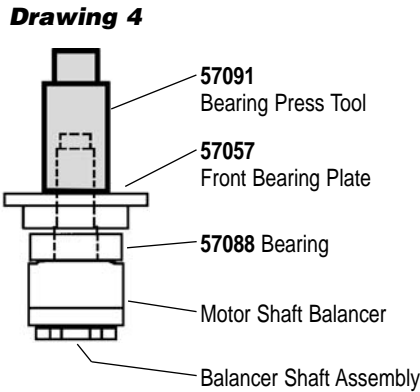
Drawing 3



Tool Assembly Complete. Please allow 30 minutes for adhesives to cure before operating tool.

(continued on next page)

Motor Assembly/Disassembly Instructions - Dynorbital® Supreme



Valve and Speed Regulator Assemblies:

1. Secure housing in vice using 57092 Collar or padded jaws.
2. Remove inlet bushing, 01468 Spring, 01472 Tip Valve and 01464 Seal from housing.
3. Remove 95697 Snap Ring. Press the spread regulator and valve stem out of the housing. Remove the 01025 O-Rings (2).
4. Place new 01025 O-Rings (2) on the speed regulator and place in housing with valve stem. Install new 95967 Snap Ring.
5. Place new 01464 Seal in housing. Using tweezers or needle nose pliers, place the tip valve into housing so that the pin goes through the valve stem hole. Place new 01468 Spring into housing so small end is towards tip valve.
6. Spread small amount of #567 Loctite® (or equivalent) around the threads of the first inlet bushing and tighten into housing to 23 N•m/200 in. - lbs.

Note: Motor should operate at between 9,500 and 10,000 RPM at 6.2 bar (90 PSIG). RPM should be checked with a reed tachometer. Before operating, we recommend that 2-3 drops of Dynabrade Air Lube P/N 95842 (or equivalent) be placed directly into the air inlet with throttle lever depressed. Operate the machine for approximately 30 seconds before application to workpiece to determine if machine is working properly and safely and to allow lubricating oils to properly disperse through machine.

Loctite® is a registered trademark of the Loctite Corp.

Disc Pad Change:

1. Insert 50679 Wrench on flats of 57069 Balancer Shaft and twist off sanding pad by hand.
2. With wrench still in place, hand tighten new pad on tool.
3. No need to remove shroud or overskirt.

Required Weight of Pads:

- 3-1/2" Models — Use pad weighing 80g.
- 5" Models — Use pad weighing 100g.
- 6" Models — Use pad weighing 130g.

Optional Accessories



96024 Motor Tune-Up Kit:
Includes assorted parts to help maintain and repair motor.



50679 26mm Wrench



57098 Motor Repair Kit:
Includes special tools for proper disassembly/assembly of the Dynorbital® Supreme.

Self-Contained Dust Collection Systems

Easily attach to Dynorbital® Supreme Random Orbital Sander – Self-Generated Vac-Ready Models.



50694 Mini-Reusable Felt Bag

- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
- Mounts directly to any Vac-Ready tool or to any exhaust hose.
- Measures 11" long x 3" wide. End opens up - no need to remove bag from tool when emptying.



50683 Reusable Felt Bag

- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
- Hook 'n loop end for easy emptying.
- Measures 14-1/2" L x 7-1/2" W.
- Connects to vacuum hose.



56304 Reusable Felt Bag w/Zipper

- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
- Has zipper-lock end.
- Measures 14-1/2" L x 7-1/2" W.
- Connects to vacuum hose.



95986 Hose Cover (5' long cloth cover)

- Covers air line and exhaust/vacuum hoses (not included).
- Eliminates damage from hoses dragging on the workpiece.



54284 Mini-Flex-Hose System

- 95580 Air Line 1" dia. x 28" long.
- 50638 Flex-Hose 1" dia. x 18" long.
- 50694 Mini-Reusable Felt Bag.
- 95362 Rubber Connectors (3) which connect air line to exhaust hose.



50617 & 56303 – 6' Long Flex-Hose

- Both systems include 6' long 50682 Flex-Hose.
- Shown with optional 95361 Air Line (1/4" diameter).
- 50617: Has 50683 Standard Reusable Felt Bag with hook 'n loop end for easy emptying.
- 56303: Has 56304 Zipper-Lock Bag.



54290 "Bag-in-Box" System

- 95361 Air Line 5' long.
- 50682 Flex-Hose 1" dia. x 6' long.
- 95362 Rubber Connectors (5, attach air line to vacuum hose).
- 95575 Durable Box Receptacle (to house bag and store tool).
- Sample paper bag included. Paper bag reorder:
50692 (400/case) or
50693 (24 per package.)

Machine Specifications

Model Number	Motor hp (W)	Motor RPM	Dia. Orbit Inch (mm)	Sound Level	Air Flow Rate CFM/SCFM (LPM)	Air Pressure PSIG (Bars)	Spindle Thread	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
56800	.28 (209)	12,000	3/16" (5)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56803	.28 (209)	12,000	3/16" (5)	83 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56804	.28 (209)	12,000	3/16" (5)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56815	.28 (209)	12,000	3/16" (5)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56818	.28 (209)	12,000	3/16" (5)	81 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56819	.28 (209)	12,000	3/16" (5)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56826	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56829	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56830	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)
56840	.28 (209)	12,000	3/32" (2)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56843	.28 (209)	12,000	3/32" (2)	83 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56844	.28 (209)	12,000	3/32" (2)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56850	.28 (209)	12,000	3/32" (2)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56853	.28 (209)	12,000	3/32" (2)	81 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56854	.28 (209)	12,000	3/32" (2)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56859	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56862	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56863	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)

Additional Specifications: Air Inlet Thread 1/4" NPT • Hose I.D. Size 1/4" or 8 mm

Preventative Maintenance Schedule

For All Dynorbital® Supreme Air Powered Random Orbital Sanders

This service chart is published as a guide to expectant life of component parts. The replacement levels are based on average tool usage over one year. Dynabrade Inc. considers one year usage to be 1,000 hours or 50% of a man year.

LEGEND	
T	Included in Tune-Up Kit.
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.
R	Replace each time tool is disassembled.

Index #	Part Number	Description	Number Required	High Wear 100%	Med. Wear 70%	Low Wear 30%	Non-Wear 10%
1	95630	Snap Ring	1		T		
2	57069	Balancer Shaft	1				X
3	59084	V-Seal	1		T		
4	56052	Balancer Bearing	1		T		
5	See Note	Motor Shaft Balancer	1				X
6	56047	Key	1		T		
7	57059	Lock Ring	1				X
8	95973	Washer	1				X
9	57055	Front Ring	1	T			
10	57088	Bearing	1		T		
11	57057	Front Bearing Plate	1			X	
12	57113	Blade/Rotor Set	1	T			
13	57058	Cylinder Assembly	1			X	
14	95971	Line-up Pin	1			X	
15	57056	Rear Bearing Plate	1			X	
16	01206	Bearing	1		T		
17	57054	Rear Ring	1	T			
18	95626	Snap Ring	1		T		
19	See Note	Lever	1				X
20	95979	Pin	1		T		
21	01464	Seal	1		T		
22	01472	Tip Valve	1		T		
23	01468	Conical Spring	1		T		
24	01494	Inlet Bushing	1				X
25	95697	Retaining Ring	1		T		
26	01025	O-Ring	2		T		
27	01477	Valve Stem	1		T		
28	57064	Speed Regulator	1			X	
29	57083	Vacuum Adapter	1			X	
30	96197	Dowel Pin	1			X	
31	57065	Cone Muffler	1		T		
32	57066	Muffler Body	1			X	
33	95526	O-Ring	1		T		
34	57068	Vac Nozzle	1			X	
35	57067	Vac Tube	1			X	
36	57093	Vacuum Adapter	1			X	
37	56027	Muffler Insert	2		T		
38	56028	Muffler Cap	1		T		
39	57112	Muffler Assembly	1			X	

Note: Please refer to page 4 for specific part number and description.

Dynorbital[®] Supreme

12,000 RPM Air Powered Random Orbital Sander

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

3/16 Orbit

- 56800 - 3-1/2" Non-Vacuum
- 56803 - 3-1/2" Vac-Ready
- 56804 - 3-1/2" Central Vac-Ready
- 56815 - 5" Non-Vacuum
- 56818 - 5" Vac-Ready
- 56819 - 5" Central Vac-Ready
- 56826 - 6" Non-Vacuum
- 56829 - 6" Vac-Ready
- 56830 - 6" Central Vac-Ready

3/32 Orbit

- 56840 - 3-1/2" Non-Vacuum
- 56843 - 3-1/2" Vac-Ready
- 56844 - 3-1/2" Central Vac-Ready
- 56850 - 5" Non-Vacuum
- 56853 - 5" Vac-Ready
- 56854 - 5" Central Vac-Ready
- 56859 - 6" Non-Vacuum
- 56862 - 6" Vac-Ready
- 56863 - 6" Central Vac-Ready



⚠ 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 Safety 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.

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

SAFETY INSTRUCTIONS

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 alerted from the original design without expressed written consent from Dynabrade, Inc.

Tool Intent: Dynorbital[®] Supreme 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.

This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.

Training: Proper care, maintenance, and storage of your tool will maximize its performance.

- Employer's Responsibility – Provide Dynorbital[®] Supreme operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Abrasive/accessory RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting an accessory, visually inspect for defects. Do not use defective accessories.
- Follow tool specifications before choosing size and type of accessory.
- Only use recommended fittings and air line sizes. Air supply hoses and air hose assemblies must have a minimum working pressure rating of 150 PSIG (10 bars, g) or 150 percent of the maximum pressure produced in the system, whichever is higher. (See Tool Machine Specifications Table.)

OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: accepted eye, face, respiratory, hearing and body protection.

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

(continued on next page)

OPERATING INSTRUCTIONS (continued)

- Keep hand and clothing away from working end of the air tool.

Operation: Be sure that any loose clothing, hair and all jewelry is properly restrained.

- Secure inlet bushing on air tool with a wrench before attempting to install the air fitting to avoid damaging housing assembly.
- Check tool RPM (speed) with tachometer with air pressure set at 90 PSIG while the tool is running. If tool is operating at a higher speed than the RPM marked on the tool housing, or operating improperly, the tool must be serviced and corrected before use.

Caution: Tool RPM must never exceed abrasive/accessory RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

- With power source disconnected from air tool, mount recommended accessory into collet assembly.
- Connect air tool to power source. Be careful NOT to depress throttle lever in the process. **Do not expose air tool to inlet pressure above 90 PSIG or (6.2 Bars).**

Caution: After installing the accessory, before testing or use and/or after assembling tool, the Dynorbital-Spirit™ must be started at a reduced speed to check for good balance. Gradually increase tool speed. DO NOT USE if tool vibration is excessive. Correct cause, and retest to insure safe operation.

- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.
- Use a vise or clamping device to hold work piece firmly in place.
- Do not apply excessive force on tool or apply "rough" treatment to it.
- Always work with a firm footing, posture and proper lighting.

Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Vacuum Conversion Instructions

To Disassemble:

1. Disconnect tool from power source. Invert machine and secure in vise, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
2. Remove sanding pad with **50679** (26 mm) Open-End Wrench (supplied with sander) and lip-seal shroud from housing.
3. Remove **56028** Muffler Cap and **56027** Muffler Insert (2) from **57066** Muffler Body. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), remove muffler body and **57065** Cone Muffler from housing (not applicable for Self-Generated Vac to Central Vac).

Non-Vacuum to Vacuum Conversion Kits

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

Non-Vac to Self-Generated Vac for Hook-Up to Self-Contained Dust Collection System

1. Attach **57083** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench, attach the muffler body, cone muffler and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert dowel pin in holes until it is centered. Attach sanding pad, attach machine to portable dust collection system.

Non-Vac to Central Vac

1. Attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing.
2. Using a 12 mm hex wrench, attach the muffler body and cone muffler to the housing through the central vacuum adapter.
3. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap.
4. Attach weight-mated vacuum sanding pad with **50679** (26 mm) Open-End Wrench. Attach machine to central vacuum system.

Self-Generated Vac to Central Vac

1. Remove **96197** Dowel Pin with an 1/8" drive pin. Remove **57067** Vacuum Tube from **57083** Vacuum Adapter by turning it clockwise while pulling backward.
2. Using a small flat screwdriver, pry vacuum nozzle until it is loose and then remove it by using two fingers to push and pull it until it hits the "legs" on vacuum adapter. Place vacuum tube back into vacuum adapter far enough to push the "legs" back then push vacuum nozzle and vacuum tube out the rest of way.
3. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), remove the **57066** Muffler Body, **57065** Cone Muffler and **95526** O-Ring from the housing through the adapter. Remove the o-ring from the muffler body.
4. Remove **57083** Vacuum Adapter and attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure that the protrusions on the overskirt or shroud are aligned with the notches on the housing.
5. Using a 12 mm hex wrench, attach the muffler body, cone muffler and o-ring to the housing through the central vacuum adapter.
6. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap. Attach sanding pad.

Central Vac to Self Generated Vac

1. Remove **57093** Central Vacuum Adapter and put the **57083** Vacuum Adapter in its place.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), attach the muffler body, cone muffler and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert **96197** Dowel Pin in holes until it is centered. Attach machine to portable dust collection system.

Maintenance 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 air 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: **11405** Air Filter-Regulator-Lubricator (FRL) – Provides accurate air pressure regulation and two stage filtration of water contaminants. Operates 40 SCFM/1,133 LPM @ 100 PSIG with 3/8" NPT female ports.
- 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**: 1 pt 473 ml) is recommended.

Routine Preventative Maintenance: Check free speed of Dynorbital-Spirit™ using a tachometer.

- 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®).
- A Drop-In Motor and Tune-Up Kit are available, see specific kit number on page 9.
- Air tool stampings must be kept legible at all times, if not, reorder and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM.
- Blow air supply hose out prior to initial use.
- Visually inspect air hoses and fittings for frays, visible damage and signs of deterioration. Replace damaged or worn components.
- Refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for safety information.

After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the air line and start the tool a few times to lubricate air motor. Check for excessive tool vibration.

Handling and Storage:

- Protect tool inlet from debris (See Notice Below).
- **DO NOT** carry tool by air hose.
- 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.

Notice

All Dynabrade motors use the highest quality parts and materials 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.



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, contact wheels, rotor blades, etc., are not covered under this warranty.



Dynorbital® Supreme Complete Assembly

KEY

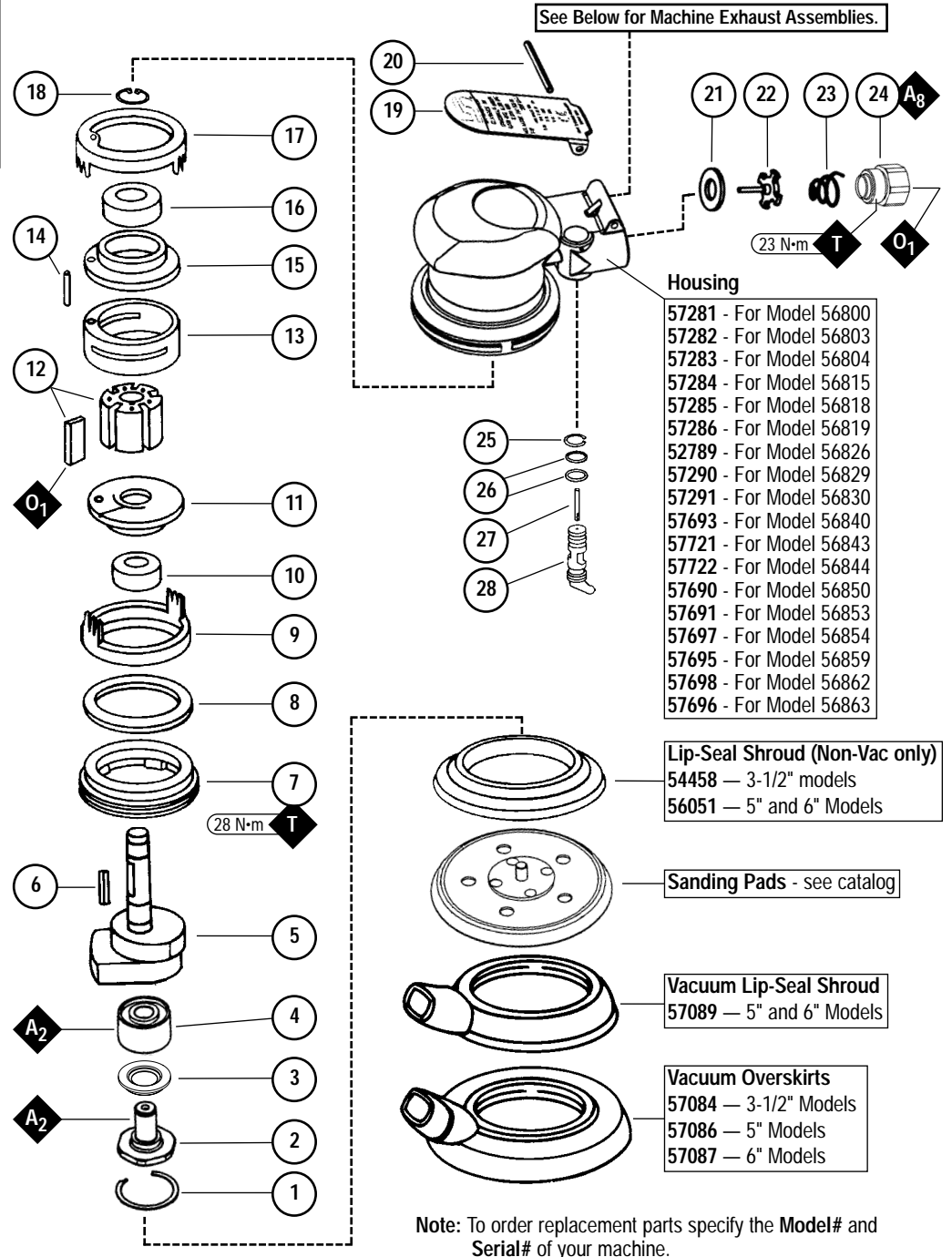
O Oil: O₁ = Air Lube

A Adhesive:
A₂ = Loctite #271
A₈ = Loctite #567

T Torque: N·m x 8.85 = In. - lbs.

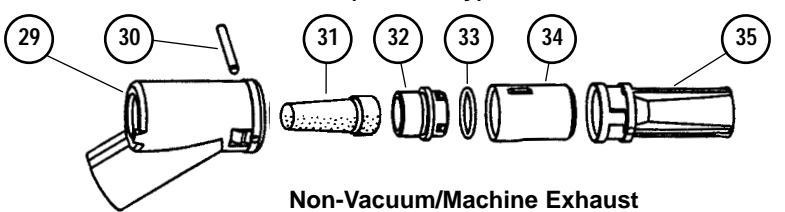
Index Key

No.	Part #	Description
1	95630	Snap Ring
2	57069	Balancer Shaft
3	59084	V-Seal
4	56052	Balancer Bearing
5	Motor Shaft Balancer	
	57060	3-1/2" (3/16 Orbit)
	57061	5" (3/16 Orbit)
	57062	6" (3/16 Orbit)
	57159	3-1/2" (3/32 Orbit)
	57160	5" (3/32 Orbit)
	57162	6" (3/32 Orbit)
6	56047	Key
7	57059	Lock Ring
8	95973	Washer
9	57055	Front Ring
10	57088	Bearing
11	57057	Front Bearing Plate
12	57113	Blade/Rotor Set
13	57058	Cylinder Assembly (Incl. 95971 Line-up Pin)
14	95971	Line-up Pin
15	57056	Rear Bearing Plate
16	01206	Bearing
17	57054	Rear Ring
18	95626	Snap Ring
19	Lever	
	56846	For 3/16" Models
	56847	For 3/32" Models
20	95979	Pin
21	01464	Seal
22	01472	Tip Valve
23	01468	Conical Spring
24	01494	Inlet Bushing
25	95697	Retaining Ring
26	01025	O-Ring (2)
27	01477	Valve Stem
28	57064	Speed Regulator or Recessed Speed Reg.
29	57083	Vacuum Adapter
30	96197	Dowel Pin
31	57065	Cone Muffler
32	57066	Muffler Body
33	95526	O-Ring
34	57068	Vac Nozzle
35	57067	Vac Tube
36	57093	Vacuum Adapter
37	56027	Muffler Insert (2)
38	56028	Muffler Cap
39	57112	Muffler Assembly

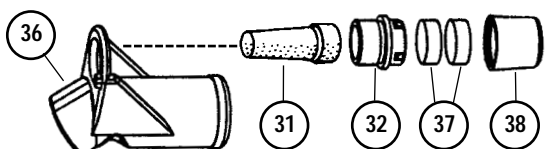


Machine Exhaust Assemblies

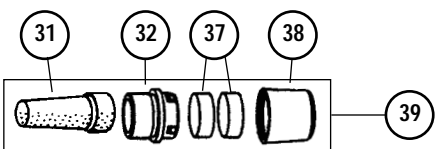
Self Generated Vacuum (Vac-Ready)/Machine Exhaust



Central Vacuum/Machine Exhaust



Non-Vacuum/Machine Exhaust



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

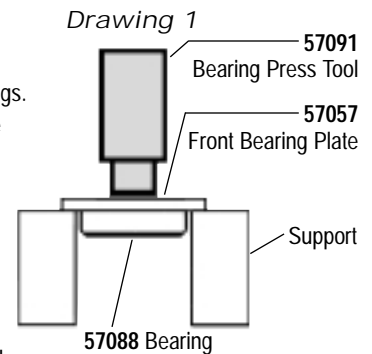
Motor Assembly/Disassembly Instructions – Dynorbital® Supreme

Important: Manufacturers warranty is void if tool is disassembled before warranty expires.

A complete Repair Kit, part number **57098**, is available which includes special tools for correct disassembly/assembly of tool.

To Disassemble

1. Disconnect tool from power source.
2. Invert machine and secure in vice, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
3. Remove sanding pad with 26 mm open-end wrench (supplied with sander) and shroud or overskirt.
4. Insert **56058** Lock Ring Tool (supplied in **57098** Repair Kit) into corresponding tabs of lock ring and unscrew. Motor may now be lifted out for service.
Note: To get it started try using 26 mm wrench for leverage or rock the motor back and forth to loosen up the rings.
5. Remove lock ring, washer, front ring and rear ring from motor. Upper motor may now be disassembled. Remove **95626** Snap Ring.
6. Remove the rear plate and the cylinder assembly by securing the cylinder in a bearing separator gripped on the cylinder exhaust and extra pocket area. Push the motor shaft balancer through the bearing.
7. Remove the rotor, vanes and rotor key from the motor shaft balancer. Remove the front plate using a small (#2) arbor press. Support the edges of the front plate while pressing on the small end of the motor shaft balancer.
8. a.) If, during step 7, the front plate and **57088** Bearing remain together, press **57088** Bearing out of the front plate using **57091** Press Tool (supplied in **57098** Repair Kit) as shown in **Drawing 1**.
b.) If, during step 7, the front plate and **57088** Bearing remains on the motor shaft balancer, it can be removed with a bearing separator.
9. Remove **01206** Bearing from the rear plate by using a bearing press tool.
10. Disassemble the balancer assembly as follows:
 - a.) Place motor shaft assembly into a soft jaw vise. Using a thin screwdriver, pick out the end of **95630** Snap Ring and peel out. This will loosen the balancer assembly.
 - b.) Screw the threaded portion of the **56056** Bearing Puller (supplied in **57098** Repair Kit) into the **57069** Balancer Shaft and heat the outside of the motor shaft balancer to approximately 200° F (approximately 10 seconds with a propane torch). Now, using the slider weight, pull the assembly out.
 - c.) Press off **56052** Bearing with a bearing separator and remove bearing seal and bearing shield.
11. If during step 10, the **56052** Bearing remains in the motor shaft balancer, it can be removed by the heating the shaft balancer again and using either an inside bearing puller or a blind hole bearing puller.

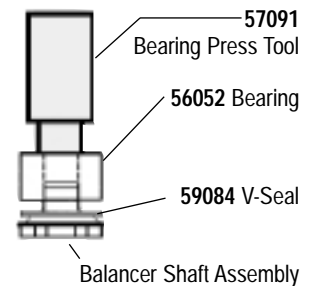


To Assemble:

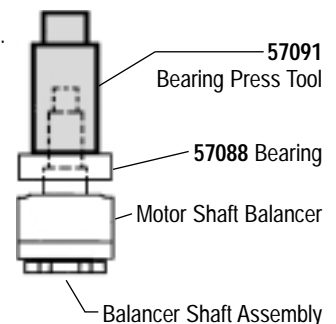
Important: Be certain parts are clean and in good repair before assembling.

1. Assemble the balancer assembly as follows:
 - a.) Install **95630** Snap Ring onto balancer shaft. Install **59084** V-Seal with the flat side facing up.
 - b.) Apply 1 drop of #271 Loctite® (or equivalent), spread over several places around the inside diameter of the **56052** Bearing and the outside diameter of the **57069** Balancer Shaft.
 - c.) Use the small end of the **57091** Bearing Press Tool and arbor press to install the **56052** Balancer Bearing with the seal side facing the v-seal. **Note:** The inner race of the bearing must sit against the step on the balancer shaft. (Shown in **Drawing 2**.)
2. Place the motor shaft balancer in a soft jaw vise with large end-up.
3. Apply 1 drop of #271 Loctite® (or equivalent) and spread over several places around the outside diameter of the **56052** Bearing and slide balancer assembly into the motor shaft balancer until **56052** Bearing is firmly seated at bottom. Squeeze **95630** Snap Ring into groove in motor shaft balancer to complete the assembly. Remove from vise.
4. Press **57088** Bearing onto the motor shaft balancer down to the shoulder as shown in **Drawing 3**.
5. Press **57057** Front Bearing Plate onto **57088** Bearing as shown in **Drawing 4** and check for smooth rotation.
6. Place the **57090** Rotor and **56047** Rotor Key on the motor shaft balancer. Place the **56073** Vanes into the rotor slots. **Note:** Vanes should be lightly lubricated with Dynabrade Air Lube P/N **95842** (or equivalent) before installation.
7. Place **57058** Cylinder Assembly over rotor. The “short” line-up pin goes toward the front plate.
8. Place **57056** Rear Bearing Plate (with **01206** Rear Bearing pressed into place) over shaft and “long” end of line-up pin and press fit in place as shown in **Drawing 5**.
9. Place **95626** Snap Ring in groove.
10. Place **57054** Rear Ring over the rear plate and line-up pin. Turn the motor over and place **57055** Front Ring over the front plate making sure that the “legs and fingers” on the front and rear rings line-up. Also the small cut-outs on both rings should line-up with the square holes in the cylinder/end plate assembly.
11. Place **95973** Washer and **57059** Lock Ring onto the front ring with 1 drop of pneumatic tool oil spread between the washer and lock ring.
12. Secure motor housing in vise, using **57092** Collar or padded jaws. Spread 2-3 drops of pneumatic tool oil around the housing bore for ease of insertion of motor assembly. Slide motor assembly into secured housing.
Note: Be certain line-up pin enters the pocket in the bottom of the housing and the “legs” of the rings stay in line.
13. Tighten lock ring with **56058** Lock Ring Tool to 28 N•m/250 in. - lbs. Attach shroud or overskirt and weight-mated sanding pad.

Drawing 2



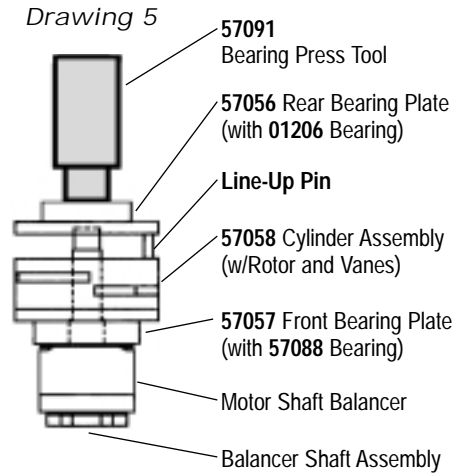
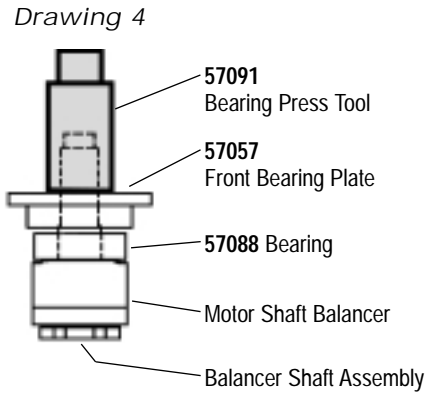
Drawing 3



Tool Assembly Complete. Please allow 30 minutes for adhesives to cure before operating tool.

(continued on next page)

Motor Assembly/Disassembly Instructions - Dynorbital® Supreme



Valve and Speed Regulator Assemblies:

1. Secure housing in vice using 57092 Collar or padded jaws.
2. Remove inlet bushing, 01468 Spring, 01472 Tip Valve and 01464 Seal from housing.
3. Remove 95697 Snap Ring. Press the spread regulator and valve stem out of the housing. Remove the 01025 O-Rings (2).
4. Place new 01025 O-Rings (2) on the speed regulator and place in housing with valve stem. Install new 95967 Snap Ring.
5. Place new 01464 Seal in housing. Using tweezers or needle nose pliers, place the tip valve into housing so that the pin goes through the valve stem hole. Place new 01468 Spring into housing so small end is towards tip valve.
6. Spread small amount of #567 Loctite® (or equivalent) around the threads of the first inlet bushing and tighten into housing to 23 N·m/200 in. - lbs.

Note: Motor should operate at between 9,500 and 10,000 RPM at 6.2 bar (90 PSIG). RPM should be checked with a reed tachometer. Before operating, we recommend that 2-3 drops of Dynabrade Air Lube P/N 95842 (or equivalent) be placed directly into the air inlet with throttle lever depressed. Operate the machine for approximately 30 seconds before application to workpiece to determine if machine is working properly and safely and to allow lubricating oils to properly disperse through machine.

Loctite® is a registered trademark of the Loctite Corp.

Disc Pad Change:

1. Insert 50679 Wrench on flats of 57069 Balancer Shaft and twist off sanding pad by hand.
2. With wrench still in place, hand tighten new pad on tool.
3. No need to remove shroud or overskirt.

Required Weight of Pads:

- 3-1/2" Models -- Use pad weighing 80g.
- 5" Models -- Use pad weighing 100g.
- 6" Models -- Use pad weighing 130g.

Optional Accessories



96024 Motor Tune-Up Kit:
Includes assorted parts to help maintain and repair motor.



50679 26mm Wrench



57098 Motor Repair Kit:
Includes special tools for proper disassembly/assembly of the Dynorbital® Supreme.

Self-Contained Dust Collection Systems

Easily attach to Dynorbital® Supreme Random Orbital Sander – Self-Generated Vac-Ready Models.



50694 Mini-Reusable Felt Bag

- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
- Mounts directly to any Vac-Ready tool or to any exhaust hose.
- Measures 11" long x 3" wide. End opens up - no need to remove bag from tool when emptying.



50683 Reusable Felt Bag

- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
- Hook 'n loop end for easy emptying.
- Measures 14-1/2" L x 7-1/2" W.
- Connects to vacuum hose.



56304 Reusable Felt Bag w/Zipper

- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
- Has zipper-lock end.
- Measures 14-1/2" L x 7-1/2" W.
- Connects to vacuum hose.



95986 Hose Cover (5' long cloth cover)

- Covers air line and exhaust/vacuum hoses (not included).
- Eliminates damage from hoses dragging on the workpiece.



54284 Mini-Flex-Hose System

- 95580 Air Line 1" dia. x 28" long.
- 50638 Flex-Hose 1" dia. x 18" long.
- 50694 Mini-Reusable Felt Bag.
- 95362 Rubber Connectors (3) which connect air line to exhaust hose.



50617 & 56303 – 6' Long Flex-Hose

- Both systems include 6' long 50682 Flex-Hose.
- Shown with optional 95361 Air Line (1/4" diameter).
- 50617: Has 50683 Standard Reusable Felt Bag with hook 'n loop end for easy emptying.
- 56303: Has 56304 Zipper-Lock Bag.



54290 "Bag-in-Box" System

- 95361 Air Line 5' long.
- 50682 Flex-Hose 1" dia. x 6' long.
- 95362 Rubber Connectors (5, attach air line to vacuum hose).
- 95575 Durable Box Receptacle (to house bag and store tool).
- Sample paper bag included. Paper bag reorder:
50692 (400/case) or
50693 (24 per package.)

Machine Specifications

Model Number	Motor hp (W)	Motor RPM	Dia. Orbit Inch (mm)	Sound Level	Air Flow Rate CFM/SCFM (LPM)	Air Pressure PSIG (Bars)	Spindle Thread	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
56800	.28 (209)	12,000	3/16" (5)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56803	.28 (209)	12,000	3/16" (5)	83 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56804	.28 (209)	12,000	3/16" (5)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56815	.28 (209)	12,000	3/16" (5)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56818	.28 (209)	12,000	3/16" (5)	81 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56819	.28 (209)	12,000	3/16" (5)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56826	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56829	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56830	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)
56840	.28 (209)	12,000	3/32" (2)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56843	.28 (209)	12,000	3/32" (2)	83 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56844	.28 (209)	12,000	3/32" (2)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56850	.28 (209)	12,000	3/32" (2)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56853	.28 (209)	12,000	3/32" (2)	81 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56854	.28 (209)	12,000	3/32" (2)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56859	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56862	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56863	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)

Additional Specifications: Air Inlet Thread 1/4" NPT • Hose I.D. Size 1/4" or 8 mm

Preventative Maintenance Schedule

For All Dynorbital® Supreme Air Powered Random Orbital Sanders

This service chart is published as a guide to expectant life of component parts. The replacement levels are based on average tool usage over one year. Dynabrade Inc. considers one year usage to be 1,000 hours or 50% of a man year.

LEGEND	
T	Included in Tune-Up Kit.
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.
R	Replace each time tool is disassembled.

Index #	Part Number	Description	Number Required	High Wear 100%	Med. Wear 70%	Low Wear 30%	Non-Wear 10%
1	95630	Snap Ring	1		T		
2	57069	Balancer Shaft	1				X
3	59084	V-Seal	1		T		
4	56052	Balancer Bearing	1		T		
5	See Note	Motor Shaft Balancer	1				X
6	56047	Key	1		T		
7	57059	Lock Ring	1				X
8	95973	Washer	1				X
9	57055	Front Ring	1	T			
10	57088	Bearing	1		T		
11	57057	Front Bearing Plate	1			X	
12	57113	Blade/Rotor Set	1	T			
13	57058	Cylinder Assembly	1			X	
14	95971	Line-up Pin	1			X	
15	57056	Rear Bearing Plate	1			X	
16	01206	Bearing	1		T		
17	57054	Rear Ring	1	T			
18	95626	Snap Ring	1		T		
19	See Note	Lever	1				X
20	95979	Pin	1		T		
21	01464	Seal	1		T		
22	01472	Tip Valve	1		T		
23	01468	Conical Spring	1		T		
24	01494	Inlet Bushing	1				X
25	95697	Retaining Ring	1		T		
26	01025	O-Ring	2		T		
27	01477	Valve Stem	1		T		
28	57064	Speed Regulator	1			X	
29	57083	Vacuum Adapter	1			X	
30	96197	Dowel Pin	1			X	
31	57065	Cone Muffler	1		T		
32	57066	Muffler Body	1			X	
33	95526	O-Ring	1		T		
34	57068	Vac Nozzle	1			X	
35	57067	Vac Tube	1			X	
36	57093	Vacuum Adapter	1			X	
37	56027	Muffler Insert	2		T		
38	56028	Muffler Cap	1		T		
39	57112	Muffler Assembly	1			X	

Note: Please refer to page 4 for specific part number and description.

Dynorbital® Supreme

12,000 RPM Air Powered Random Orbital Sander

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

3/16 Orbit

56800 - 3-1/2" Non-Vacuum
56803 - 3-1/2" Vac-Ready
56804 - 3-1/2" Central Vac-Ready
56815 - 5" Non-Vacuum
56818 - 5" Vac-Ready
56819 - 5" Central Vac-Ready
56826 - 6" Non-Vacuum
56829 - 6" Vac-Ready
56830 - 6" Central Vac-Ready

3/32 Orbit

56840 - 3-1/2" Non-Vacuum
56843 - 3-1/2" Vac-Ready
56844 - 3-1/2" Central Vac-Ready
56850 - 5" Non-Vacuum
56853 - 5" Vac-Ready
56854 - 5" Central Vac-Ready
56859 - 6" Non-Vacuum
56862 - 6" Vac-Ready
56863 - 6" Central Vac-Ready



⚠ 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.

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

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



⚠ 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.

SAFETY INSTRUCTIONS

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 without expressed written consent from Dynabrade, Inc.

Tool Intent: Dynorbital® Supreme 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.

This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.

Training: Proper care, maintenance, and storage of your tool will maximize its performance.

- Employer's Responsibility – Provide Dynorbital® Supreme operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Abrasive/accessory RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting an accessory, visually inspect for defects. Do not use defective accessories.
- Follow tool specifications before choosing size and type of accessory.
- Only use recommended fittings and air line sizes. Air supply hoses and air hose assemblies must have a minimum working pressure rating of 150 PSIG (10 bars, g) or 150 percent of the maximum pressure produced in the system, whichever is higher. (See Tool Machine Specifications Table.)

OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: accepted eye, face, respiratory, hearing and body protection.

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

- Keep hand and clothing away from working end of the air tool.

Operation: Be sure that any loose clothing, hair and all jewelry is properly restrained.

- Secure inlet bushing on air tool with a wrench before attempting to install the air fitting to avoid damaging housing assembly.
- Check tool RPM (speed) with tachometer with air pressure set at 90 PSIG while the tool is running. If tool is operating at a higher speed than the RPM marked on the tool housing, or operating improperly, the tool must be serviced and corrected before use.

Caution: Tool RPM must never exceed abrasive/accessory RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

- With power source disconnected from air tool, mount recommended accessory into collet assembly.
- Connect air tool to power source. Be careful NOT to depress throttle lever in the process. **Do not expose air tool to inlet pressure above 90 PSIG or (6.2 Bars).**

Caution: After installing the accessory, before testing or use and/or after assembling tool, the Dynorbital Supreme® must be started at a reduced speed to check for good balance. Gradually increase tool speed. DO NOT USE if tool vibration is excessive. Correct cause, and retest to insure safe operation.

- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.
- Use a vise or clamping device to hold work piece firmly in place.
- Do not apply excessive force on tool or apply "rough" treatment to it.
- Always work with a firm footing, posture and proper lighting.

Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Vacuum Conversion Instructions

To Disassemble:

1. Disconnect tool from power source. Invert machine and secure in vise, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
2. Remove sanding pad with **50679** (26 mm) Open-End Wrench (supplied with sander) and lip-seal shroud from housing.
3. Remove **56028** Muffler Cap and **56027** Muffler Insert (2) from **57066** Muffler Body. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), remove muffler body and **57065** Cone Muffler from housing (not applicable for Self-Generated Vac to Central Vac).

Non-Vacuum to Vacuum Conversion Kits

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

Non-Vac to Self-Generated Vac for Hook-Up to Self-Contained Dust Collection System

1. Attach **57083** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing. Press cone muffler out of muffler body.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench, attach the muffler body and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert dowel pin in holes until it is centered. Attach sanding pad, attach machine to portable dust collection system.

Non-Vac to Central Vac

1. Attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing.
2. Using a 12 mm hex wrench, attach the muffler body and cone muffler to the housing through the central vacuum adapter.
3. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap.
4. Attach weight-mated vacuum sanding pad with **50679** (26 mm) Open-End Wrench. Attach machine to central vacuum system.

Self-Generated Vac to Central Vac

1. Remove **96197** Dowel Pin with an 1/8" drive pin. Remove **57067** Vacuum Tube from **57083** Vacuum Adapter by turning it clockwise while pulling backward.
2. Using a small flat screwdriver, pry vacuum nozzle until it is loose and then remove it by using two fingers to push and pull it until it hits the "legs" on vacuum adapter. Place vacuum tube back into vacuum adapter far enough to push the "legs" back then push vacuum nozzle and vacuum tube out the rest of way.
3. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), remove the **57066** Muffler Body and **95526** O-Ring from the housing through the adapter. Remove the o-ring from the muffler body. Press cone muffler into the muffler body.
4. Remove **57083** Vacuum Adapter and attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure that the protrusions on the overskirt or shroud are aligned with the notches on the housing.
5. Using a 12 mm hex wrench, attach the muffler body and o-ring to the housing through the central vacuum adapter.
6. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap. Attach sanding pad.

Central Vac to Self Generated Vac

1. Remove **57093** Central Vacuum Adapter and put the **57083** Vacuum Adapter in its place.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), attach the muffler body and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert **96197** Dowel Pin in holes until it is centered. Attach machine to portable dust collection system.

Maintenance 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 air 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: **11405** Air Filter-Regulator-Lubricator (FRL) – Provides accurate air pressure regulation and two stage filtration of water contaminants. Operates 40 SCFM/1,133 LPM @ 100 PSIG with 3/8" NPT female ports.
- 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**: 1 pt 473 ml) is recommended.

Routine Preventative Maintenance: Check free speed of Dynorbital Supreme® using a tachometer.

- 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®).
- A Drop-In Motor and Tune-Up Kit are available, see specific kit number on page 9.
- Air tool stampings must be kept legible at all times, if not, reorder and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM.
- Blow air supply hose out prior to initial use.
- Visually inspect air hoses and fittings for frays, visible damage and signs of deterioration. Replace damaged or worn components.
- Refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for safety information.

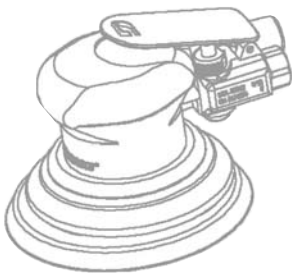
After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the air line and start the tool a few times to lubricate air motor. Check for excessive tool vibration.

Handling and Storage:

- Protect tool inlet from debris (See Notice Below).
- DO NOT carry tool by air hose.
- 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.

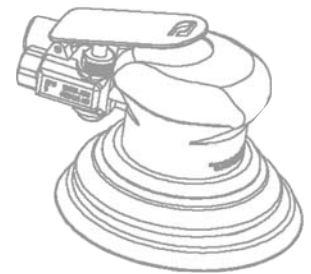
Notice

All Dynabrade motors use the highest quality parts and materials 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.



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, contact wheels, rotor blades, etc., are not covered under this warranty.



Dynorbital® Supreme Complete Assembly

KEY

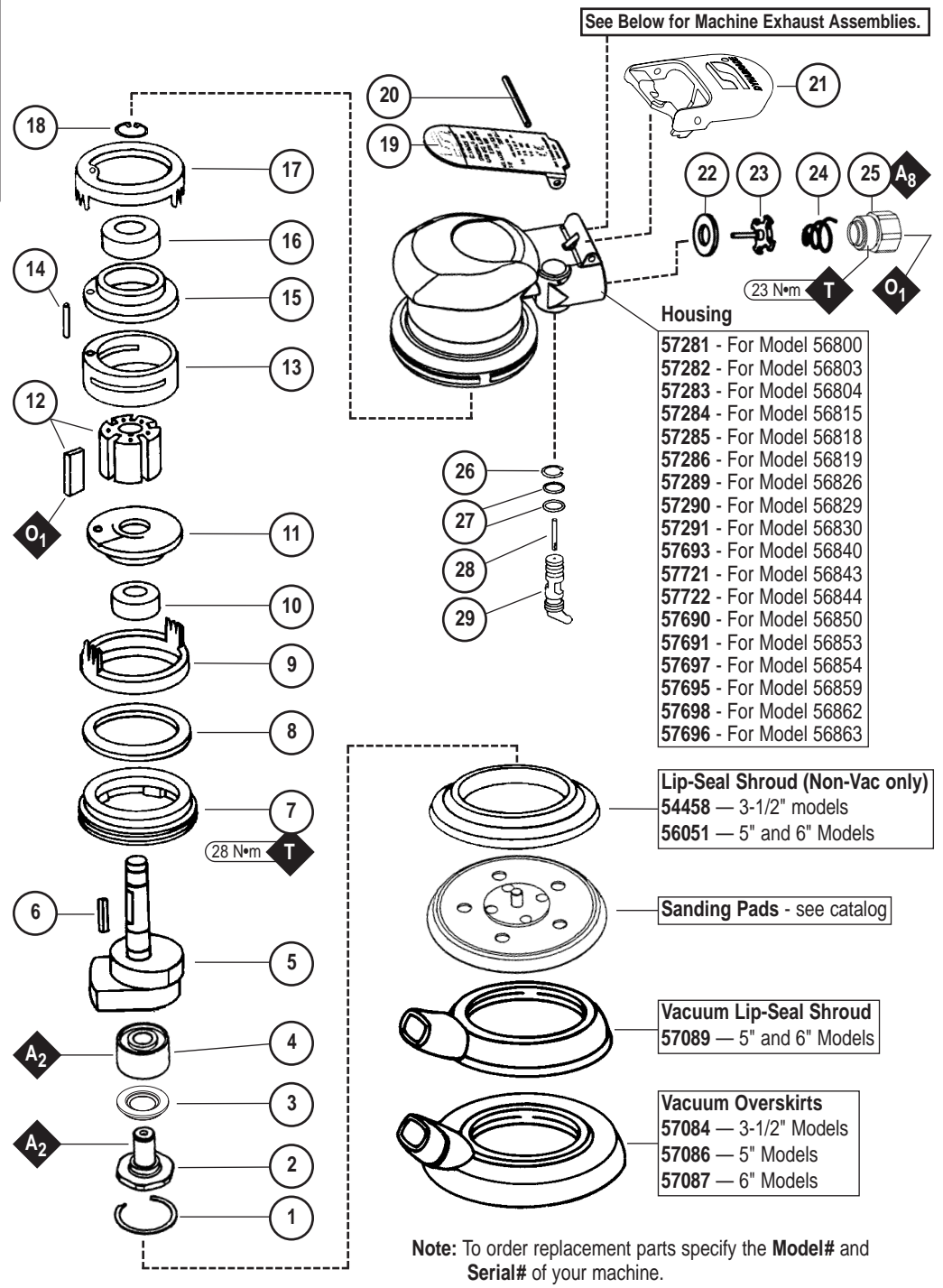
O Oil: O₁ = Air Lube

A Adhesive:
A₂ = Loctite #271
A₈ = Loctite #567

T Torque: N•m x 8.85 = In. - lbs.

Index Key

No.	Part #	Description
1	95630	Snap Ring
2	57069	Balancer Shaft
3	59084	V-Seal
4	56052	Balancer Bearing
5	Motor Shaft Balancer	
	57060	3-1/2" (3/16 Orbit)
	57061	5" (3/16 Orbit)
	57062	6" (3/16 Orbit)
	57159	3-1/2" (3/32 Orbit)
	57160	5" (3/32 Orbit)
	57162	6" (3/32 Orbit)
6	56047	Key
7	57059	Lock Ring
8	95973	Washer
9	57055	Front Ring
10	57088	Bearing
11	57057	Front Bearing Plate
12	57113	Blade/Rotor Set
13	57058	Cylinder Assembly (Incl. 95971 Line-up Pin)
14	95971	Line-up Pin
15	57056	Rear Bearing Plate
16	01206	Bearing
17	57054	Rear Ring
18	95626	Snap Ring
19	Lever	
	56846	For 3/16" Models
	56847	For 3/32" Models
20	94590	Pin
21	57041	Comfort Platform
22	01464	Seal
23	01472	Tip Valve
24	01468	Conical Spring
25	01494	Inlet Bushing
26	95697	Retaining Ring
27	01025	O-Ring (2)
28	01477	Valve Stem
29	57064	Speed Regulator or Recessed Speed Reg.
30	57083	Vacuum Adapter
31	96197	Dowel Pin
32	57065	Cone Muffler
33	57066	Muffler Body
34	95526	O-Ring
35	57068	Vac Nozzle
36	57067	Vac Tube
37	57093	Vacuum Adapter
38	56027	Muffler Insert (2)
39	56028	Muffler Cap
40	57112	Muffler Assembly



- Housing**
- 57281 - For Model 56800
 - 57282 - For Model 56803
 - 57283 - For Model 56804
 - 57284 - For Model 56815
 - 57285 - For Model 56818
 - 57286 - For Model 56819
 - 57289 - For Model 56826
 - 57290 - For Model 56829
 - 57291 - For Model 56830
 - 57693 - For Model 56840
 - 57721 - For Model 56843
 - 57722 - For Model 56844
 - 57690 - For Model 56850
 - 57691 - For Model 56853
 - 57697 - For Model 56854
 - 57695 - For Model 56859
 - 57698 - For Model 56862
 - 57696 - For Model 56863

- Lip-Seal Shroud (Non-Vac only)**
- 54458 - 3-1/2" models
 - 56051 - 5" and 6" Models

Sanding Pads - see catalog

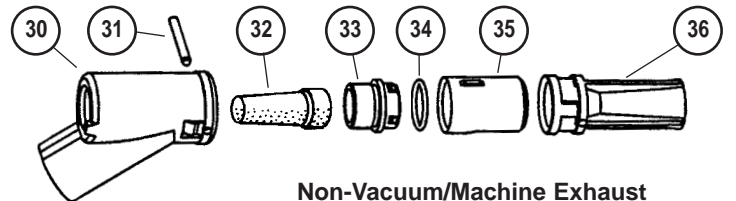
- Vacuum Lip-Seal Shroud**
- 57089 - 5" and 6" Models

- Vacuum Overskirts**
- 57084 - 3-1/2" Models
 - 57086 - 5" Models
 - 57087 - 6" Models

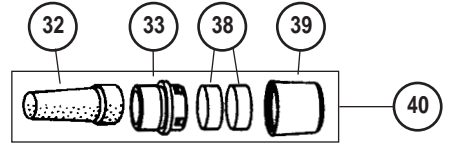
Note: To order replacement parts specify the **Model#** and **Serial#** of your machine.

Machine Exhaust Assemblies

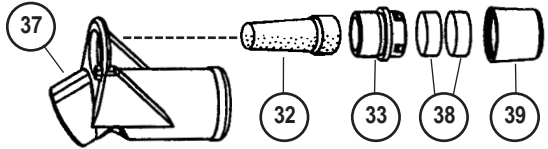
Self Generated Vacuum (Vac-Ready)/Machine Exhaust



Non-Vacuum/Machine Exhaust



Central Vacuum/Machine Exhaust



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

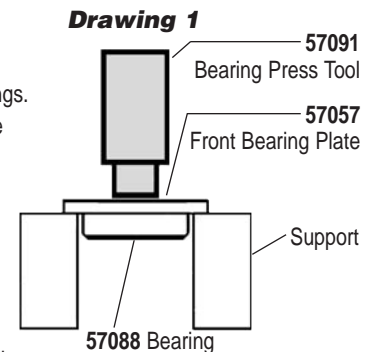
Motor Assembly/Disassembly Instructions – Dynorbital® Supreme

Important: Manufacturers warranty is void if tool is disassembled before warranty expires.

A complete Repair Kit, part number **57098**, is available which includes special tools for correct disassembly/assembly of tool.

To Disassemble

1. Disconnect tool from power source.
2. Invert machine and secure in vice, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
3. Remove sanding pad with 26 mm open-end wrench (supplied with sander) and shroud or overskirt.
4. Insert **56058** Lock Ring Tool (supplied in **57098** Repair Kit) into corresponding tabs of lock ring and unscrew. Motor may now be lifted out for service.
Note: To get it started try using 26 mm wrench for leverage or rock the motor back and forth to loosen up the rings.
5. Remove lock ring, washer, front ring and rear ring from motor. Upper motor may now be disassembled. Remove **95626** Snap Ring.
6. Remove the rear plate and the cylinder assembly by securing the cylinder in a bearing separator gripped on the cylinder exhaust and extra pocket area. Push the motor shaft balancer through the bearing.
7. Remove the rotor, vanes and rotor key from the motor shaft balancer. Remove the front plate using a small (#2) arbor press. Support the edges of the front plate while pressing on the small end of the motor shaft balancer.
8. a.) If, during step 7, the front plate and **57088** Bearing remain together, press **57088** Bearing out of the front plate using **57091** Press Tool (supplied in **57098** Repair Kit) as shown in **Drawing 1**.
b.) If, during step 7, the front plate and **57088** Bearing remains on the motor shaft balancer, it can be removed with a bearing separator.
9. Remove **01206** Bearing from the rear plate by using a bearing press tool.
10. Disassemble the balancer assembly as follows:
 - a.) Place motor shaft assembly into a soft jaw vise. Using a thin screwdriver, pick out the end of **95630** Snap Ring and peel out. This will loosen the balancer assembly.
 - b.) Screw the threaded portion of the **56056** Bearing Puller (supplied in **57098** Repair Kit) into the **57069** Balancer Shaft and heat the outside of the motor shaft balancer to approximately 200° F (approximately 10 seconds with a propane torch). Now, using the slider weight, pull the assembly out.
 - c.) Press off **56052** Bearing with a bearing separator and remove bearing seal and bearing shield.
11. If during step 10, the **56052** Bearing remains in the motor shaft balancer, it can be removed by the heating the shaft balancer again and using either an inside bearing puller or a blind hole bearing puller.

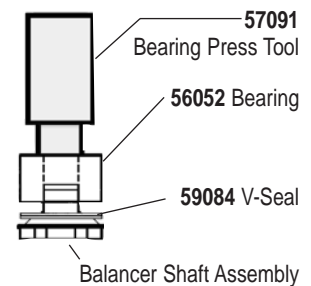


To Assemble:

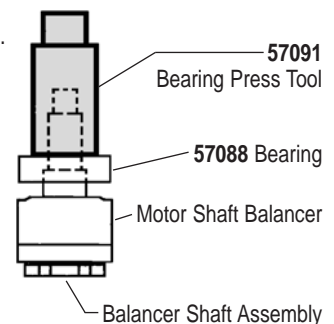
Important: Be certain parts are clean and in good repair before assembling.

1. Assemble the balancer assembly as follows:
 - a.) Install **95630** Snap Ring onto balancer shaft. Install **59084** V-Seal with the flat side facing up.
 - b.) Apply 1 drop of #271 Loctite® (or equivalent), spread over several places around the inside diameter of the **56052** Bearing and the outside diameter of the **57069** Balancer Shaft.
 - c.) Use the small end of the **57091** Bearing Press Tool and arbor press to install the **56052** Balancer Bearing with the seal side facing the v-seal. **Note:** The inner race of the bearing must sit against the step on the balancer shaft. (Shown in **Drawing 2**.)
2. Place the motor shaft balancer in a soft jaw vise with large end-up.
3. Apply 1 drop of #271 Loctite® (or equivalent) and spread over several places around the outside diameter of the **56052** Bearing and slide balancer assembly into the motor shaft balancer until **56052** Bearing is firmly seated at bottom. Squeeze **95630** Snap Ring into groove in motor shaft balancer to complete the assembly. Remove from vise.
4. Press **57088** Bearing onto the motor shaft balancer down to the shoulder as shown in **Drawing 3**.
5. Press **57057** Front Bearing Plate onto **57088** Bearing as shown in **Drawing 4** and check for smooth rotation.
6. Place the **57090** Rotor and **56047** Rotor Key on the motor shaft balancer. Place the **56073** Vanes into the rotor slots. **Note:** Vanes should be lightly lubricated with Dynabrade Air Lube P/N **95842** (or equivalent) before installation.
7. Place **57058** Cylinder Assembly over rotor. The “short” line-up pin goes toward the front plate.
8. Place **57056** Rear Bearing Plate (with **01206** Rear Bearing pressed into place) over shaft and “long” end of line-up pin and press fit in place as shown in **Drawing 5**.
9. Place **95626** Snap Ring in groove.
10. Place **57054** Rear Ring over the rear plate and line-up pin. Turn the motor over and place **57055** Front Ring over the front plate making sure that the “legs and fingers” on the front and rear rings line-up. Also the small cut-outs on both rings should line-up with the square holes in the cylinder/end plate assembly.
11. Place **95973** Washer and **57059** Lock Ring onto the front ring with 1 drop of pneumatic tool oil spread between the washer and lock ring.
12. Secure motor housing in vise, using **57092** Collar or padded jaws. Spread 2-3 drops of pneumatic tool oil around the housing bore for ease of insertion of motor assembly. Slide motor assembly into secured housing.
Note: Be certain line-up pin enters the pocket in the bottom of the housing and the “legs” of the rings stay in line.
13. Tighten lock ring with **56058** Lock Ring Tool to 28 N•m/250 in. - lbs. Attach shroud or overskirt and weight-mated sanding pad.

Drawing 2



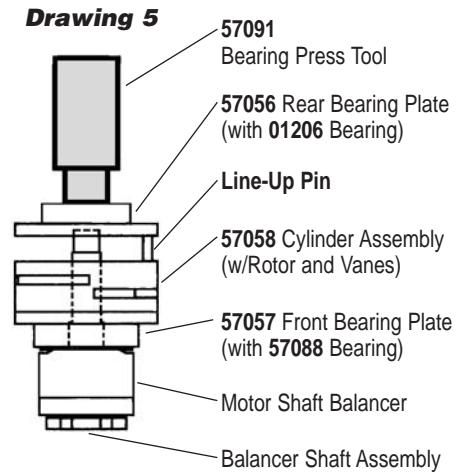
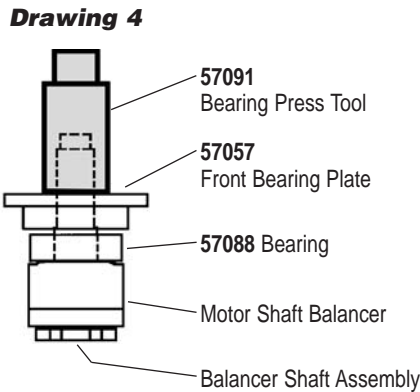
Drawing 3



Tool Assembly Complete. Please allow 30 minutes for adhesives to cure before operating tool.

(continued on next page)

Motor Assembly/Disassembly Instructions – Dynorbital® Supreme



Valve and Speed Regulator Assemblies:

1. Secure housing in vice using 57092 Collar or padded jaws.
2. Remove inlet bushing, 01468 Spring, 01472 Tip Valve and 01464 Seal from housing. Remove 94590 Pin from housing, lever and comfort platform.
3. Remove 95697 Snap Ring. Press the spread regulator and valve stem out of the housing. Remove the 01025 O-Rings (2).
4. Place new 01025 O-Rings (2) on the speed regulator and place in housing with valve stem. Install new 95967 Snap Ring.
5. Place new 01464 Seal in housing. Using tweezers or needle nose pliers, place the tip valve into housing so that the pin goes through the valve stem hole. Place new 01468 Spring into housing so small end is towards tip valve.
6. Spread small amount of #567 Loctite® (or equivalent) around the threads of the first inlet bushing and tighten into housing to 23 N•m/200 in. - lbs.
7. Install lever and comfort platform on housing with 94590 Pin centered on housing.

Note: Motor should operate at between 9,500 and 10,000 RPM at 6.2 bar (90 PSIG). RPM should be checked with a reed tachometer. Before operating, we recommend that 2-3 drops of Dynabrade Air Lube P/N 95842 (or equivalent) be placed directly into the air inlet with throttle lever depressed. Operate the machine for approximately 30 seconds before application to workpiece to determine if machine is working properly and safely and to allow lubricating oils to properly dispense through machine.

Loctite® is a registered trademark of the Loctite Corp.

Disc Pad Change:

1. Insert 50679 Wrench on flats of 57069 Balancer Shaft and twist off sanding pad by hand.
2. With wrench still in place, hand tighten new pad on tool.
3. No need to remove shroud or overskirt.

Required Weight of Pads:

3-1/2" Models — Use pad weighing 80g.

5" Models — Use pad weighing 100g.

6" Models — Use pad weighing 130g.

Comfort Platform Removal Instructions

1. Use a 1/8" drift pin and a hammer to remove 94590 Pin.
2. Remove throttle lever and 57041 Comfort Platform.
3. Place throttle lever back into position over holes in housing.
4. Secure throttle lever in place using 95979 Pin (**Sold Separately**) by hammering pin back into housing. **Removal and Installation Complete.**

Optional Accessories



96024 Motor Tune-Up Kit:

Includes assorted parts to help maintain and repair motor.



50679 26mm Wrench



57098 Motor Repair Kit:

Includes special tools for proper disassembly/assembly of the Dynorbital® Supreme.

Self-Contained Dust Collection Systems

Easily attach to Dynorbital® Supreme Random Orbital Sander – Self-Generated Vac-Ready Models.



- 50694 Mini-Reusable Felt Bag**
- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
 - Mounts directly to any Vac-Ready tool or to any exhaust hose.
 - Measures 11" long x 3" wide. End opens up - no need to remove bag from tool when emptying.



- 50683 Reusable Felt Bag**
- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
 - Hook 'n loop end for easy emptying.
 - Measures 14-1/2" L x 7-1/2" W.
 - Connects to vacuum hose.



- 56304 Reusable Felt Bag w/Zipper**
- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
 - Has zipper-lock end.
 - Measures 14-1/2" L x 7-1/2" W.
 - Connects to vacuum hose.



- 95986 Hose Cover (5' long cloth cover)**
- Covers air line and exhaust/vacuum hoses (not included).
 - Eliminates damage from hoses dragging on the workpiece.



- 54284 Mini-Flex-Hose System**
- **95580** Air Line 1" dia. x 28" long.
 - **50638** Flex-Hose 1" dia. x 18" long.
 - **50694** Mini-Reusable Felt Bag.
 - **95362** Rubber Connectors (3) which connect air line to exhaust hose.



- 50617 & 56303 – 6' Long Flex-Hose**
- Both systems include 6' long **50682** Flex-Hose.
 - Shown with optional **95361** Air Line (1/4" diameter).
 - 50617**: Has **50683** Standard Reusable Felt Bag with hook 'n loop end for easy emptying.
 - 56303**: Has **56304** Zipper-Lock Bag.



- 54290 "Bag-in-Box" System**
- **95361** Air Line 5' long.
 - **50682** Flex-Hose 1" dia. x 6' long.
 - **95362** Rubber Connectors (5, attach air line to vacuum hose).
 - **95575** Durable Box Receptacle (to house bag and store tool).
 - Sample paper bag included. Paper bag reorder:
50692 (400/case) or
50693 (24 per package.)

Machine Specifications

Model Number	Motor hp (W)	Motor RPM	Dia. Orbit Inch (mm)	Sound Level	Air Flow Rate SCFM (LPM)	Air Pressure PSIG (Bars)	Spindle Thread	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
56800	.28 (209)	12,000	3/16" (5)	76 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56803	.28 (209)	12,000	3/16" (5)	83 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56804	.28 (209)	12,000	3/16" (5)	76 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56815	.28 (209)	12,000	3/16" (5)	78 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56818	.28 (209)	12,000	3/16" (5)	81 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56819	.28 (209)	12,000	3/16" (5)	78 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56826	.28 (209)	12,000	3/16" (5)	79 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56829	.28 (209)	12,000	3/16" (5)	79 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56830	.28 (209)	12,000	3/16" (5)	79 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)
56840	.28 (209)	12,000	3/32" (2)	76 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56843	.28 (209)	12,000	3/32" (2)	83 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56844	.28 (209)	12,000	3/32" (2)	76 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56850	.28 (209)	12,000	3/32" (2)	78 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56853	.28 (209)	12,000	3/32" (2)	81 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56854	.28 (209)	12,000	3/32" (2)	78 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56859	.28 (209)	12,000	3/32" (2)	79 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56862	.28 (209)	12,000	3/32" (2)	79 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56863	.28 (209)	12,000	3/32" (2)	79 dB(A)	18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)

Additional Specifications: Air Inlet Thread 1/4" NPT • Hose I.D. Size 1/4" (6mm)

Preventative Maintenance Schedule

For All Dynorbital® Supreme Air Powered Random Orbital Sanders

This service chart is published as a guide to expectant life of component parts. The replacement levels are based on average tool usage over one year. Dynabrade Inc. considers one year usage to be 1,000 hours.

LEGEND	
T	Included in Tune-Up Kit.
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.
R	Replace each time tool is disassembled.

Index #	Part Number	Description	Number Required	High Wear 100%	Med. Wear 70%	Low Wear 30%	Non-Wear 10%
1	95630	Snap Ring	1		T		
2	57069	Balancer Shaft	1				X
3	59084	V-Seal	1		T		
4	56052	Balancer Bearing	1		T		
5	See Note	Motor Shaft Balancer	1				X
6	56047	Key	1		T		
7	57059	Lock Ring	1				X
8	95973	Washer	1				X
9	57055	Front Ring	1	T			
10	57088	Bearing	1		T		
11	57057	Front Bearing Plate	1			X	
12	57113	Blade/Rotor Set	1	T			
13	57058	Cylinder Assembly	1			X	
14	95971	Line-up Pin	1			X	
15	57056	Rear Bearing Plate	1			X	
16	01206	Bearing	1		T		
17	57054	Rear Ring	1	T			
18	95626	Snap Ring	1		T		
19	See Note	Lever	1				X
20	94590	Pin	1		T		
21	57041	Comfort Platform	1			X	
22	01464	Seal	1		T		
23	01472	Tip Valve	1		T		
24	01468	Conical Spring	1		T		
25	01494	Inlet Bushing	1				X
26	95697	Retaining Ring	1		T		
27	01025	O-Ring	2		T		
28	01477	Valve Stem	1		T		
29	57064	Speed Regulator	1			X	
30	57083	Vacuum Adapter	1			X	
31	96197	Dowel Pin	1			X	
32	57065	Cone Muffler	1		T		
33	57066	Muffler Body	1			X	
34	95526	O-Ring	1		T		
35	57068	Vac Nozzle	1			X	
36	57067	Vac Tube	1			X	
37	57093	Vacuum Adapter	1			X	
38	56027	Muffler Insert	2		T		
39	56028	Muffler Cap	1		T		
40	57112	Muffler Assembly	1			X	

Note: Please refer to page 4 for specific part number and description.

Dynorbital® Supreme

Parts Page Reorder No. PD09•03

Effective February, 2009

Supersedes PD07•10

For Serial No. 09B1000A and Higher

12,000 RPM Air Powered Random Orbital Sander

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

3/8 Orbit

56870 - 3-1/2" Non-Vacuum
56873 - 3-1/2" Vac-Ready
56874 - 3-1/2" Central Vac-Ready
56880 - 5" Non-Vacuum
56883 - 5" Vac-Ready
56884 - 5" Central Vac-Ready
56890 - 6" Non-Vacuum
56893 - 6" Vac-Ready
56894 - 6" Central Vac-Ready

3/16 Orbit

56800 - 3-1/2" Non-Vacuum
56803 - 3-1/2" Vac-Ready
56804 - 3-1/2" Central Vac-Ready
56815 - 5" Non-Vacuum
56818 - 5" Vac-Ready
56819 - 5" Central Vac-Ready
56826 - 6" Non-Vacuum
56829 - 6" Vac-Ready
56830 - 6" Central Vac-Ready

3/32 Orbit

56840 - 3-1/2" Non-Vacuum
56843 - 3-1/2" Vac-Ready
56844 - 3-1/2" Central Vac-Ready
56850 - 5" Non-Vacuum
56853 - 5" Vac-Ready
56854 - 5" Central Vac-Ready
56859 - 6" Non-Vacuum
56862 - 6" Vac-Ready
56863 - 6" Central Vac-Ready



! 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.

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

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



! 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.

SAFETY INSTRUCTIONS

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 without expressed written consent from Dynabrade, Inc.

Tool Intent: Dynorbital® Supreme 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.

Warning: This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.

Training: Proper care, maintenance, and storage of your tool will maximize its performance.

- Employer's Responsibility – Provide Dynorbital® Supreme operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Abrasive/accessory RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting an accessory, visually inspect for defects. Do not use defective accessories.
- Follow tool specifications before choosing size and type of accessory.
- Only use recommended fittings and air line sizes. Air supply hoses and air hose assemblies must have a minimum working pressure rating of 150 PSIG (10 bars, g) or 150 percent of the maximum pressure produced in the system, whichever is higher. (See Tool Machine Specifications Table.)

OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: accepted eye, face, respiratory, hearing and body protection.

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

Warning: Be sure that any loose clothing, hair and all jewelry is properly restrained.

- Keep hand and clothing away from moving end of the air tool which has a potential hazard of cutting and severing.
- Install air fitting into inlet bushing of tool. Important: Secure inlet bushing of tool with a wrench before attempting to install the air fitting to avoid damaging valve body housing.

Warning: Regularly check free speed (RPM) of random orbital sander. The speed (RPM) is checked with the back-up pad securely fastened without any type of sanding accessory attached to the back-up pad. The air pressure must be set to 90 PSIG with the tool running. Checking the RPM requires either a strobe or magnetic tachometer. This procedure is required after all tool repairs and whenever a tool is issued for use. If tool is operating at a higher speed than the RPM marked on the tool housing, or operating improperly, the tool must be serviced and corrected before use.

Warning: Tool RPM must never exceed abrasive/accessory RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

Warning: Do not free spin the tool away from the work surface with an abrasive sanding disc attached. The sanding disc may detach from the back-up pad causing injury.

Warning: Always start the tool with the sanding abrasive against the work. Stop the air flow to the tool as it is removed from the work.

- With power source connected at the air tool relieve hose of air pressure and disconnect tool from air supply when changing recommended accessories.
- Connect air tool to power source. Be careful NOT to depress throttle lever in the process.

Do not expose air tool to inlet pressure above 90 PSIG or (6.2 Bars).

Caution: After installing the accessory, before testing or use and/or after reassembling tool, the tool must be started at a reduced speed to check for good balance. Gradually increase tool speed. DO NOT USE if tool vibration is excessive. Correct cause, and retest to insure safe operation.

Warning: Use only appropriately sized abrasive sanding discs properly secured and centered to the backing pad provided with the air sander.

- DO NOT USE grinding wheels or cutting-off wheels.
- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.

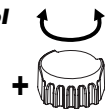
Warning: Potentially explosive atmospheres can be caused by dust and fumes resulting from sanding or grinding. Always use dust extraction or suppression systems which are suitable for the material being processed.

- Proceed with caution in unfamiliar surroundings. Hidden hazards may exist, such as electricity or other utility lines.
- Use only Dynabrade weight-mated pads to maintain low vibration levels.
- Use a vise or clamping device to hold work piece firmly in place.
- Work may generate hazardous dust.
- Always be aware of bystanders in work areas.
- Do not apply excessive force on tool or apply "rough" treatment to it.
- Always work with a firm footing, posture and proper lighting.
- Release the throttle lever in case of an interruption of the energy supply.
- Ensure that sparks and debris resulting from work do not create a hazard such as fire or explosion.
- This tool is rear exhaust. Exhaust may contain lubricants, vane material, bearing grease, and other materials flushed through the tool.

Speed Regulator Flow Control

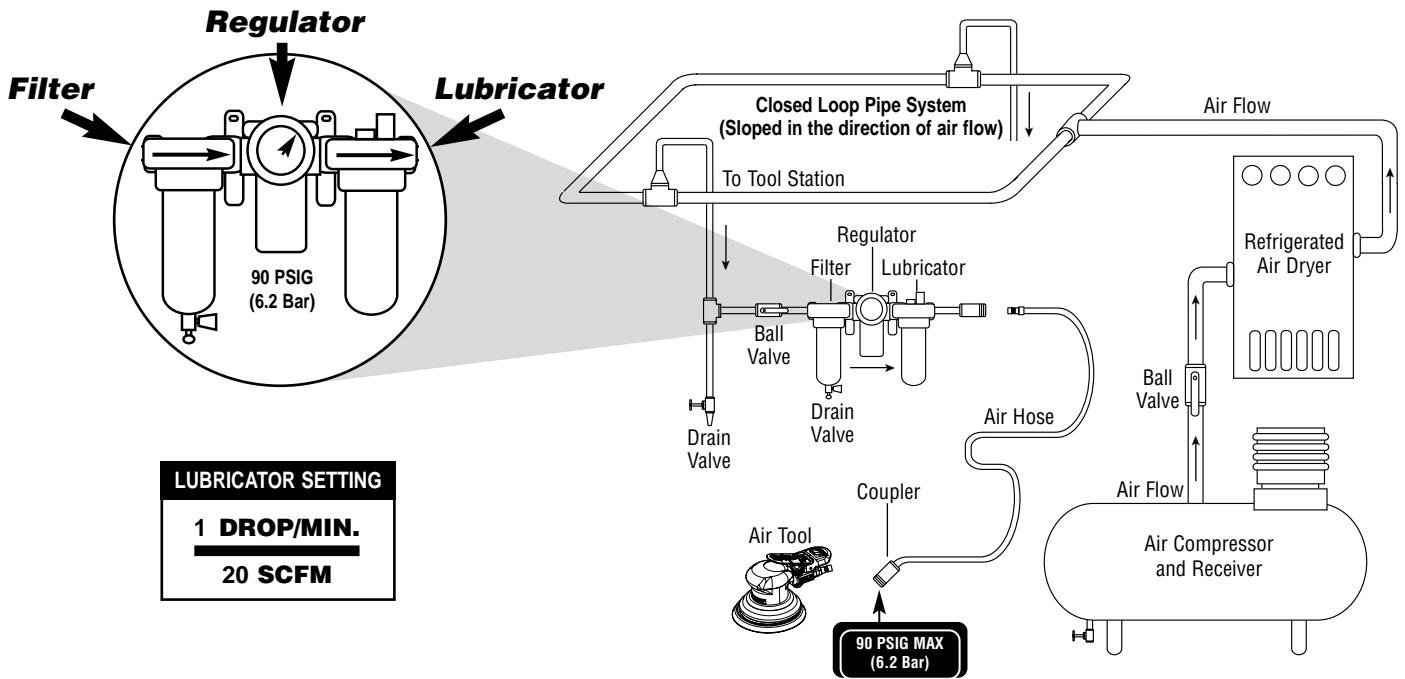
Maximum Flow: Turn Clockwise.

Minimum Flow: Turn Counter-clockwise.



Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Air System



- Dynabrade Air Power Tools are designed to operate at 90 PSIG (6.2 Bar/620 kPa) 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 of 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.

Maintenance Instructions

Important: To keep tool safe a Preventative Maintenance Program is recommended whenever portable power tools are used.

- Use only genuine Dynabrade replacement parts to ensure quality. To order replacement parts, specify **Model#**, **Serial#** and **RPM** of your air 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 Filter-Regulator-Lubricator (FRL) – Provides accurate air pressure regulation and two stage filtration of water contaminants.
- 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**: 1 pt 473 ml) is recommended.

Routine Preventative Maintenance: Check free speed of Dynorbital® Supreme regularly using a strobe or magnetic tachometer without abrasive accessory attached with 90 PSIG at inlet while tool is running. Always check tool speed after any maintenance or repair. If tool is operating at a higher RPM (speed) than marked on the housing, or operating improperly, the tool must be corrected before use.

- 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®).
- A Tune-Up Kit is available, P/N **96024**.
- Air tool stampings must be kept legible at all times, if not, reorder and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM.
- Blow air supply hose out prior to initial use.
- Visually inspect air hoses and fittings for frays, visible damage and signs of deterioration. Replace damaged or worn components.
- Refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for safety information.

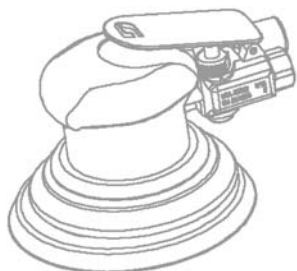
After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the air line and start the tool a few times to lubricate air motor. Check for excessive tool vibration.

Handling and Storage:

- Protect tool inlet from debris (See Notice Below).
- **DO NOT** carry tool by air hose.
- 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.

Notice

All Dynabrade motors use the highest quality parts and materials 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.



Lifetime Warranty

All 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 lifetime of the tool. Upon examination and review at our factory, Dynabrade shall confirm that the tool qualifies for warranty status, and will repair or replace the tool at no charge to the customer. Normally wearable parts and products are NOT covered under this warranty. Uncovered items include bearings, contact wheels, rotor blades, regulators, valve stems, levers, shrouds, guards, O-rings, seals, gaskets and other wearable parts. Dynabrade's warranty policy is contingent upon proper use of our tools in accordance with factory recommendations, instructions and safety practices. It shall not apply to equipment that has been subjected to misuse, negligence, accident or tampering in any way so as to affect its normal performance. Dynabrade will not honor lifetime warranty on unregistered tools. A one-year warranty will be honored on all unregistered portable pneumatic power tools. Lifetime warranty applies only to portable pneumatic tools manufactured by Dynabrade, Inc. in the USA. Lifetime warranty applies only to the original tool owner; warranty is non-transferable.

For Models:

56800, 56803, 56804, 56815, 56818, 56819
 56826, 56829, 56830, 56840, 56843, 56844
 56850, 56853, 56854, 56859, 56862, 56863
 56870, 56873, 56874, 56880, 56883, 56884
 56890, 56893, 56894

Dynorbital® Supreme

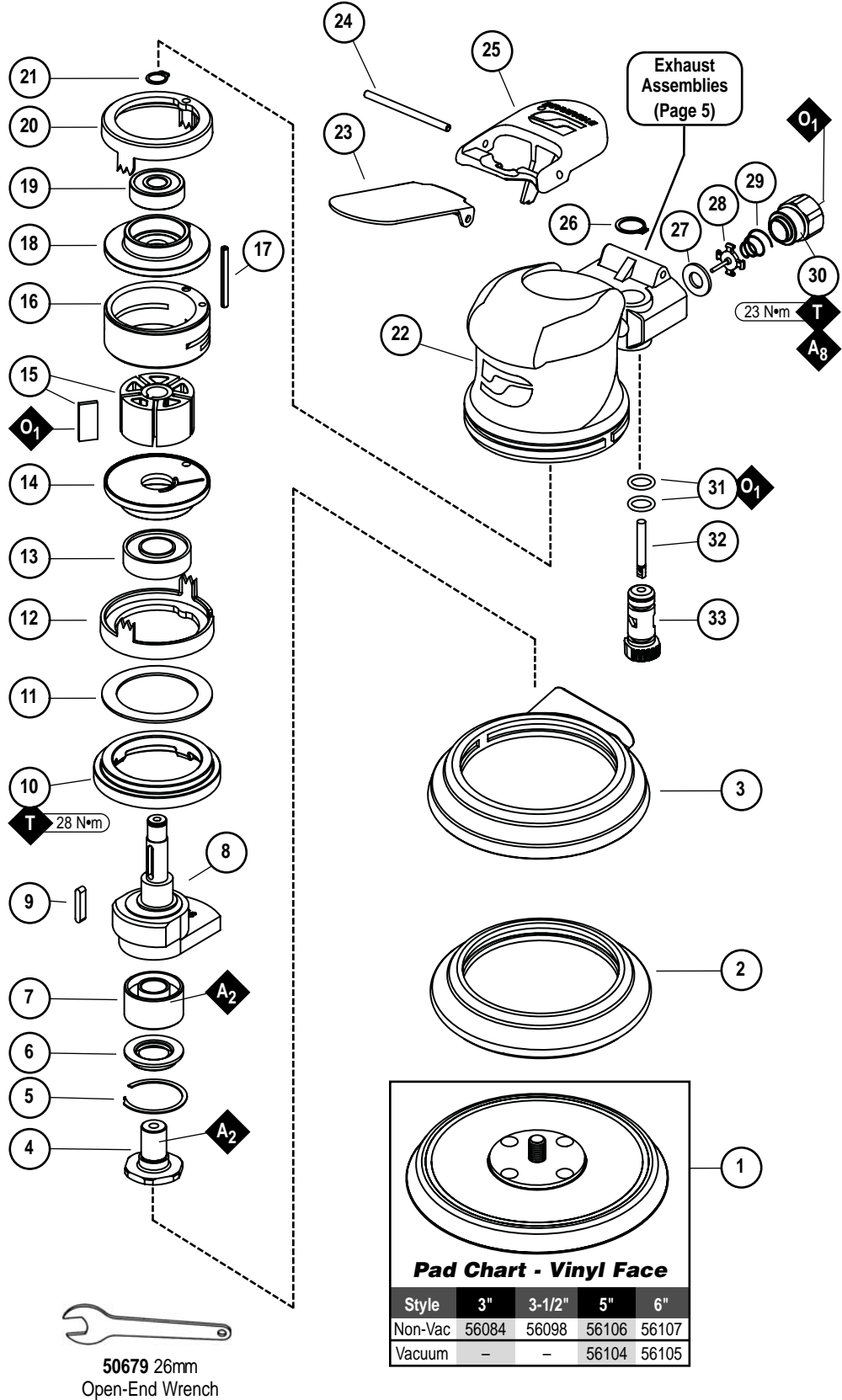
Complete Assembly

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

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.

Index Key

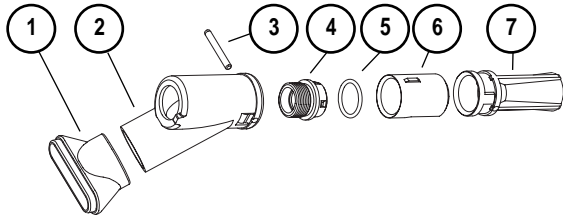
No.	Part #	Description		
1	Back-Up Pads - See Chart			
2	Non-Vacuum Shroud			
	54458	3-1/2" (3/32" & 3/16" Orbit)		
	54459	3-1/2" (3/8" Orbit)		
	56051	5" & 6"		
3	Vacuum Shroud			
	57084	3-1/2"		
	69362	5"		
	69363	6"		
4	57069	Balancer Shaft		
5	95630	Snap Ring		
6	59084	V-Seal		
7	56052	Bearing		
8	Motor Shaft Balancer			
	Orbit	3-1/2"	5"	6"
	3/8"	56380	56381	56382
	3/16"	57060	57061	57062
	3/32"	57159	57160	57162
9	56047	Key		
10	57059	Lock Ring		
11	95973	Washer		
12	57055	Front Ring		
13	57088	Bearing		
14	57057	Front Bearing Plate		
15	57113	Rotor/Blade Set		
16	57058	Cylinder (Incl. 95971 Line-Up Pin)		
17	95971	Line-Up Pin		
18	57056	Rear Bearing Plate		
19	01206	Bearing		
20	57054	Rear Ring		
21	95626	Snap Ring		
22	Housing (See Chart - Page 8)			
23	56848	Throttle Lever - 3/8"		
	56846	Throttle Lever - 3/16"		
	56847	Throttle Lever - 3/32"		
24	94590	Pin		
25	57041	Comfort Platform		
26	95697	Retaining Ring		
27	01464	Seal		
28	01472	Tip Valve		
29	01468	Spring		
30	01494	Inlet Bushing		
31	01025	O-Ring (2)		
32	01477	Valve Stem		
33	57064	Speed Regulator		



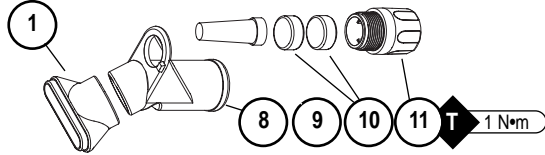
Pad Chart - Vinyl Face

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

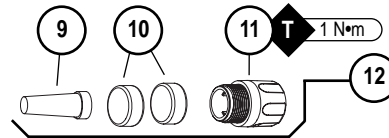
Self Generated Vacuum



Central Vacuum



Non-Vacuum



Index Key

No.	Part #	Description
1	69364	Shroud Adapter
2	57083	Vacuum Adapter
3	96197	Dowel Pin
4	57066	Muffler Body
5	95526	O-Ring
6	57068	Vac Nozzle
7	57067	Vac Tube
8	57093	Central Vacuum Adapter
9	57065	Cone Muffler
10	56027	Muffler Insert (2)
11	69359	Muffler Body
12	69274	Muffler Assembly

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

Motor Assembly/Disassembly Instructions – Dynorbital® Supreme

Important: Manufacturers warranty is void if tool is disassembled before warranty expires.

A complete Repair Kit, part number **57098**, is available which includes special tools for correct disassembly/assembly of tool.

To Disassemble

1. Disconnect tool from power source.
2. Invert machine and secure in vice, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
3. Remove sanding pad with 26 mm open-end wrench (supplied with sander) and shroud or overskirt.
4. Insert **56058** Lock Ring Tool (supplied in **57098** Repair Kit) into corresponding tabs of lock ring and unscrew. Motor may now be lifted out for service.
Note: To get it started try using 26 mm wrench for leverage or rock the motor back and forth to loosen up the rings.
5. Remove lock ring, washer, front ring and rear ring from motor. Upper motor may now be disassembled. Remove **95626** Snap Ring.
6. Remove the rear plate and the cylinder assembly by securing the cylinder in a bearing separator gripped on the cylinder exhaust and extra pocket area. Push the motor shaft balancer through the bearing.
7. Remove the rotor, vanes and rotor key from the motor shaft balancer. Remove the front plate using a small (#2) arbor press. Support the edges of the front plate while pressing on the small end of the motor shaft balancer.
 - a.) If, during step 7, the front plate and **57088** Bearing remain together, press **57088** Bearing out of the front plate using **57091** Press Tool (supplied in **57098** Repair Kit) as shown in **Drawing 1**.
 - b.) If, during step 7, **57088** Bearing remains on the motor shaft balancer, it can be removed with a bearing separator.
9. Remove **01206** Bearing from the rear plate by using a bearing press tool.
10. Disassemble the balancer assembly as follows:
 - a.) Place motor shaft assembly into a soft jaw vise. Using a thin screwdriver, pick out the end of **95630** Snap Ring and peel out. This will loosen the balancer assembly.
 - b.) Screw the threaded portion of the **56056** Bearing Puller (supplied in **57098** Repair Kit) into the **57069** Balancer Shaft and heat the outside of the motor shaft balancer to approximately 200° F (approximately 10 seconds with a propane torch). Now, using the slider weight, pull the assembly out.
 - c.) Press off **56052** Bearing with a bearing separator and remove v-seal.
11. If during step 10, the **56052** Bearing remains in the motor shaft balancer, it can be removed by the heating the shaft balancer again and using either an inside bearing puller or a blind hole bearing puller.

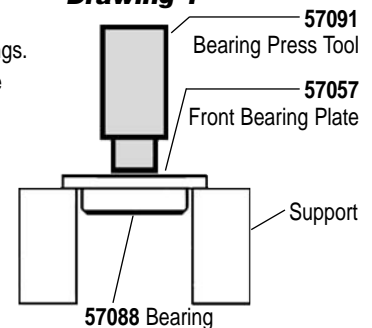
To Assemble:

Important: Be certain parts are clean and in good repair before assembling.

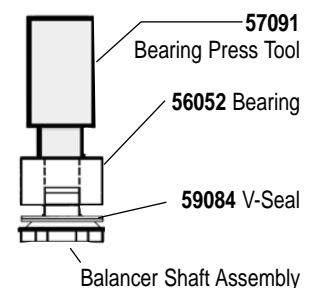
1. Assemble the balancer assembly as follows:
 - a.) Install **95630** Snap Ring onto balancer shaft. Install **59084** V-Seal with the flat side facing up.
 - b.) Apply 1 drop of #271 Loctite® (or equivalent), spread over several places around the inside diameter of the **56052** Bearing and the outside diameter of the **57069** Balancer Shaft.
 - c.) Use the small end of the **57091** Bearing Press Tool and arbor press to install the **56052** Balancer Bearing with the seal side facing the v-seal. **Note:** The inner race of the bearing must sit against the step on the balancer shaft. (Shown in **Drawing 2**.)
2. Place the motor shaft balancer in a soft jaw vise with large end-up.
3. Apply 1 drop of #271 Loctite® (or equivalent) and spread over several places around the outside diameter of the **56052** Bearing and slide balancer assembly into the motor shaft balancer until **56052** Bearing is firmly seated at bottom. Squeeze **95630** Snap Ring into groove in motor shaft balancer to complete the assembly. Remove from vise.
4. Press **57088** Bearing onto the motor shaft balancer down to the shoulder as shown in **Drawing 3**.
5. Press **57057** Front Bearing Plate onto **57088** Bearing as shown in **Drawing 4** and check for smooth rotation.

(continued on next page)

Drawing 1

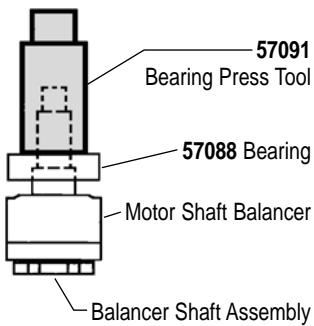


Drawing 2

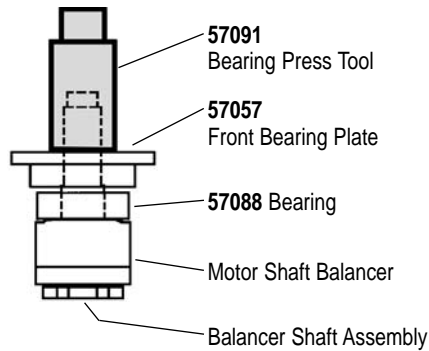


Motor Assembly/Disassembly Instructions – Dynorbital® Supreme (Cont.)

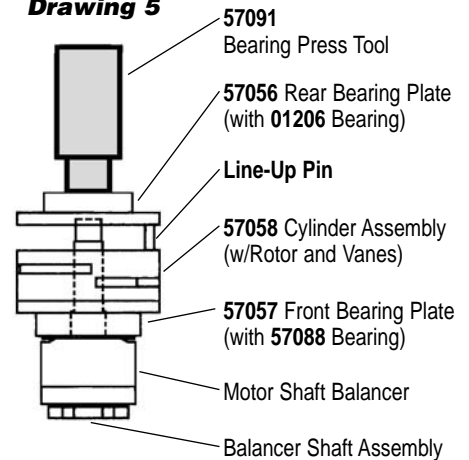
Drawing 3



Drawing 4



Drawing 5



Special Note: For All 3/8" Orbit Models

The **57059** Lock Ring, **95973** Washer and **57055** Front Ring must be placed over the Motor Shaft Balancer before the **57057** Front Bearing Plate is pressed on.

- Place the **56047** Rotor Key and rotor on the motor shaft balancer. Place the vanes into the rotor slots. **Note:** Vanes should be lightly lubricated with Dynabrade Air Lube P/N **95842** (or equivalent) before installation.
- Place **57058** Cylinder Assembly over rotor. The "short" line-up pin goes toward the front plate.
- Place **57056** Rear Bearing Plate (with **01206** Rear Bearing pressed into place) over shaft and "long" end of line-up pin and press fit in place as shown in **Drawing 5**.
- Place **95626** Snap Ring in groove.
- Place **57054** Rear Ring over the rear plate and line-up pin. Turn the motor over and place **57055** Front Ring over the front plate making sure that the "legs and fingers" on the front and rear rings line-up. Also the small cut-outs on both rings should line-up with each other.
- Place **95973** Washer and **57059** Lock Ring onto the front ring with 1 drop of pneumatic tool oil spread between the washer and lock ring.
- Secure motor housing in vise, using **57092** Collar or padded jaws. Spread 2-3 drops of pneumatic tool oil around the housing bore for ease of insertion of motor assembly. Slide motor assembly into secured housing. **Note:** Be certain line-up pin enters the pocket in the bottom of the housing and the "legs" of the rings stay in line.
- Tighten lock ring with **56058** Lock Ring Tool to 28 N•m/250 in. - lbs. Attach shroud or overskirt and weight-mated sanding pad.

Tool Assembly Complete. Please allow 30 minutes for adhesives to cure before operating tool.

Valve and Speed Regulator Assemblies:

- Secure housing in vice using **57092** Collar or padded jaws.
- Remove **01494** Inlet Bushing, **01468** Spring, **01472** Tip Valve and **01464** Seal from housing. Remove **94590** Pin from housing, lever and comfort platform.
- Remove **95697** Snap Ring. Press the speed regulator and valve stem out of the housing. Remove the **01025** O-Rings (2).
- Place new **01025** O-Rings (2) on the speed regulator and place in housing with valve stem. Install new **95967** Snap Ring.
- Place new **01464** Seal in housing. Using tweezers or needle nose pliers, place the tip valve into housing so that the pin goes through the valve stem hole. Place new **01468** Spring into housing so small end is towards tip valve.
- Spread small amount of #567 Loctite® (or equivalent) around the threads of the **01494** Inlet Bushing and tighten into housing to 23 N•m/200 in. - lbs.
- Install lever and comfort platform on housing with **94590** Pin centered on housing.

Note: Motor should operate at between 11,500 and 12,000 RPM at 6.2 bar (90 PSIG). RPM should be checked with a reed tachometer. Before operating, we recommend that 2-3 drops of Dynabrade Air Lube P/N **95842** (or equivalent) be placed directly into the air inlet with throttle lever depressed. Operate the machine for approximately 30 seconds before application to workpiece to determine if machine is working properly and safely and to allow lubricating oils to properly dispense through machine.

Loctite® is a registered trademark of the Loctite Corp.

Disc Pad Change:

- Insert **50679** Wrench on flats of **57069** Balancer Shaft and twist off sanding pad by hand.
- With wrench still in place, hand tighten new pad on tool.
- No need to remove shroud or overskirt.

Required Weight of Pads:

- 3-1/2" Models — Use pad weighing 80g.
- 5" Models — Use pad weighing 100g.
- 6" Models — Use pad weighing 130g.

Preventative Maintenance Schedule

For All Dynorbital® Supreme Sanders

This service chart is published as a guide to expectant life of component parts. The replacement levels are based on average tool usage over one year. Dynabrade Inc. considers one year usage to be 1,000 hours.

LEGEND

T	Included in Tune-Up Kit.
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.



96024 Tune-Up Kit

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



57098 Full Service Repair Kit:

Includes special tools for proper disassembly/assembly of the Dynorbital® Supreme.

- Includes:
- 57092 Repair Collar
 - 56058 Lock Ring Wrench
 - 56056 Bearing Puller
 - 57091 Bearing Press Tool
 - 57099 Bearing Puller
 - 96034 12mm Hex Wrench
 - 96066 3/4" Socket

Parts Common to all Models:

Index #	Part Number	Description	Number Required	High Wear 100%	Medium Wear 70%	Low Wear 30%	Non-Wear 10%
1	See Note	Back-Up Pad	1				X
2	See Note	Lip-Seal Shroud	1			X	
3	See Note	Vacuum Shroud	1				X
4	57069	Balancer Shaft	1				X
5	95630	Snap Ring	1			L	
6	59084	V-Seal	1		T		
7	56052	Bearing	1		T		
8	See Note	Motor Shaft Balancer	1				X
9	56047	Key	1		T		
10	57059	Lock Ring	1			X	
11	95973	Washer	1				X
12	57055	Front Ring	1			X	
13	57088	Bearing	1		T		
14	57057	Front Bearing Plate	1			X	
15	57113	Rotor/Blade Set	1	T			
16	57058	Cylinder	1			X	
17	95971	Line-Up Pin	1		T		
18	57056	Rear Bearing Plate	1			X	
19	01206	Bearing	1		T		
20	57054	Rear Ring	1		T		
21	95626	Snap Ring	1		T		
22	See Note	Housing	1				X
23	See Note	Throttle Lever	1			X	
24	94590	Pin	1		T		
25	57041	Comfort Platform	1			X	
26	95697	Retaining Ring	1		T		
27	01464	Seal	1		T		
28	01472	Tip Valve	1		T		
29	01468	Spring	1		T		
30	01494	Inlet Bushing	1				X
31	01025	O-Ring	2		T		
32	01477	Valve Stem	1		T		
33	57064	Speed Regulator	1			X	
Machine Exhaust Parts (Reference page 5 for your machines specific components.)							
1	69364	Shroud Adapter	1			X	
2	57083	Vacuum Adapter	1			X	
3	96197	Dowel Pin	1			L	
4	57066	Muffler Body	1			X	
5	95526	O-Ring	1		T		
6	57068	Vacuum Nozzle	1			D	
7	57067	Vacuum Tube	1			X	
8	57093	Central Vacuum Adapter	1			X	
9	57065	Cone Muffler	1	T			
10	56027	Muffler Inserts	2	T			
11	69359	Muffler Body	1			X	

Note: Please refer to page 4 of tool manual for specific part number.

Complete Model Description/Housing Number

3/8" Orbit Models

Model Number	Vacuum Description	Housing Number
56870	3-1/2" Non-Vacuum	58291
56873	3-1/2" Self Generated Vacuum	58292
56874	3-1/2" Central Vacuum	58293
56880	5" Non-Vacuum	58294
56883	5" Self Generated Vacuum	58295
56884	5" Central Vacuum	58296
56890	6" Non-Vacuum	58297
56893	6" Self Generated Vacuum	58298
56894	6" Central Vacuum	58299

3/16" Orbit Models

Model Number	Vacuum Description	Housing Number
56800	3-1/2" Non-Vacuum	57281
56803	3-1/2" Self Generated Vacuum	57282
56804	3-1/2" Central Vacuum	57283
56815	5" Non-Vacuum	57284
56818	5" Self Generated Vacuum	57285
56819	5" Central Vacuum	57286
56826	6" Non-Vacuum	57289
56829	6" Self Generated Vacuum	57290
56830	6" Central Vacuum	57291

3/32" Orbit Models

Model Number	Vacuum Description	Housing Number
56840	3-1/2" Non-Vacuum	57693
56843	3-1/2" Self Generated Vacuum	57721
56844	3-1/2" Central Vacuum	57722
56850	5" Non-Vacuum	57690
56853	5" Self Generated Vacuum	57691
56854	5" Central Vacuum	57697
56859	6" Non-Vacuum	57695
56862	6" Self Generated Vacuum	57698
56863	6" Central Vacuum	57696

Machine Specifications

Model Number	Vacuum Style	Tool Dia. Inch (mm)	Dia. Orbit Inch (mm)	Sound Level	Weight Pound (kg)	Length Inch (mm)
56800	Non-Vac	3-1/2 (89)	3/16 (5)	77 dB(A)	2.1 (1)	6 (152)
56803	Self-Gen	3-1/2 (89)	3/16 (5)	83 dB(A)	2.1 (1)	8-1/4 (210)
56804	Central	3-1/2 (89)	3/16 (5)	79 dB(A)	2.1 (1)	7 (178)
56815	Non-Vac	5 (127)	3/16 (5)	79 dB(A)	2.1 (1)	6-1/2 (165)
56818	Self-Gen	5 (127)	3/16 (5)	81 dB(A)	2.1 (1)	8-1/2 (216)
56819	Central	5 (127)	3/16 (5)	79 dB(A)	2.2 (1)	7-1/4 (184)
56826	Non-Vac	6 (152)	3/16 (5)	77 dB(A)	2.2 (1)	7 (178)
56829	Self-Gen	6 (152)	3/16 (5)	83 dB(A)	2.3 (1)	9 (229)
56830	Central	6 (152)	3/16 (5)	80 dB(A)	2.3 (1)	7-3/4 (197)
56840	Non-Vac	3-1/2 (89)	3/32 (2)	76 dB(A)	2.1 (1)	6 (152)
56843	Self-Gen	3-1/2 (89)	3/32 (2)	81 dB(A)	2.1 (1)	8-1/4 (210)
56844	Central	3-1/2 (89)	3/32 (2)	79 dB(A)	2.1 (1)	7 (178)
56850	Non-Vac	5 (127)	3/32 (2)	76 dB(A)	2.1 (1)	6-1/2 (165)
56853	Self-Gen	5 (127)	3/32 (2)	81 dB(A)	2.1 (1)	8-1/2 (216)

Model Number	Vacuum Style	Tool Dia. Inch (mm)	Dia. Orbit Inch (mm)	Sound Level	Weight Pound (kg)	Length Inch (mm)
56854	Central	5 (127)	3/32 (2)	80 dB(A)	2.2 (1)	7-1/4 (184)
56859	Non-Vac	6 (152)	3/32 (2)	75 dB(A)	2.2 (1)	7 (178)
56862	Self-Gen	6 (152)	3/32 (2)	83 dB(A)	2.3 (1)	9 (229)
56863	Central	6 (152)	3/32 (2)	78 dB(A)	2.3 (1)	7-3/4 (197)
56870	Non-Vac	3-1/2 (89)	3/8 (10)	79 dB(A)	2.2 (1)	6 (152)
56873	Self-Gen	3-1/2 (89)	3/8 (10)	83 dB(A)	2.3 (1)	8-1/4 (210)
56874	Central	3-1/2 (89)	3/8 (10)	80 dB(A)	2.3 (1)	7 (178)
56880	Non-Vac	5 (127)	3/8 (10)	77 dB(A)	2.3 (1)	6-1/2 (165)
56883	Self-Gen	5 (127)	3/8 (10)	83 dB(A)	2.3 (1)	8-1/2 (216)
56884	Central	5 (127)	3/8 (10)	80 dB(A)	2.3 (1)	7-1/4 (184)
56890	Non-Vac	6 (152)	3/8 (10)	79 dB(A)	2.4 (1)	7 (178)
56893	Self-Gen	6 (152)	3/8 (10)	84 dB(A)	2.5 (1.1)	9 (229)
56894	Central	6 (152)	3/8 (10)	83 dB(A)	2.4 (1)	7-3/4 (197)

Additional Specifications: Motor .28 hp (209 W) • Motor 12,000 RPM • Pad Thread 5/16"-24 Male • Air Inlet Thread 1/4" NPT
 Hose I.D. Size 1/4" (6 mm) • Air Flow Rate 18 SCFM/510 LPM • Height 3-1/2" (89 mm) • Air Pressure 90 PSIG (6.2 Bar)
 Sound Level is the pressure measurement according to the method outlined in ISO regulation ISO-15744

Overskirt/Vacuum Conversion Kits

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

Overskirt Shrouds

Protects pad edges when working near workpiece sides; maximizes dust pick-up on vacuum models.

- 57084:** 3-1/2" Diameter
- 57086:** 5" Diameter
- 57087:** 6" Diameter



Dynorbital[®] Supreme

PD12.32
April, 2016
Supersedes PD09.03

12,000 RPM Air Powered Random Orbital Sander

For Serial No. 12K1000B and Higher

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

3/8 Orbit

56870 - 3-1/2" Non-Vacuum
56873 - 3-1/2" Vac-Ready
56874 - 3-1/2" Central Vac-Ready
56880 - 5" Non-Vacuum
56883 - 5" Vac-Ready
56884 - 5" Central Vac-Ready
56890 - 6" Non-Vacuum
56893 - 6" Vac-Ready
56894 - 6" Central Vac-Ready

3/16 Orbit

56800 - 3-1/2" Non-Vacuum
56803 - 3-1/2" Vac-Ready
56804 - 3-1/2" Central Vac-Ready
56815 - 5" Non-Vacuum
56818 - 5" Vac-Ready
56819 - 5" Central Vac-Ready
56826 - 6" Non-Vacuum
56829 - 6" Vac-Ready
56830 - 6" Central Vac-Ready

3/32 Orbit

56840 - 3-1/2" Non-Vacuum
56843 - 3-1/2" Vac-Ready
56844 - 3-1/2" Central Vac-Ready
56850 - 5" Non-Vacuum
56853 - 5" Vac-Ready
56854 - 5" Central Vac-Ready
56859 - 6" Non-Vacuum
56862 - 6" Vac-Ready
56863 - 6" Central Vac-Ready



⚠ 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.

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

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



⚠ 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.

SAFETY INSTRUCTIONS

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 without expressed written consent from Dynabrade, Inc.

Tool Intent: Dynorbital[®] Supreme 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.

Warning: This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.

Training: Proper care, maintenance, and storage of your tool will maximize its performance.

- Employer's Responsibility – Provide Dynorbital[®] Supreme operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Abrasive/accessory RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting an accessory, visually inspect for defects. Do not use defective accessories.
- Follow tool specifications before choosing size and type of accessory.
- Only use recommended fittings and air line sizes. Air supply hoses and air hose assemblies must have a minimum working pressure rating of 150 PSIG (10 bars, g) or 150 percent of the maximum pressure produced in the system, whichever is higher. (See Tool Machine Specifications Table.)

OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: accepted eye, face, respiratory, hearing and body protection.

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

Warning: Be sure that any loose clothing, hair and all jewelry is properly restrained.

- Keep hand and clothing away from moving end of the air tool which has a potential hazard of cutting and severing.
- Install air fitting into inlet bushing of tool. Important: Secure inlet bushing of tool with a wrench before attempting to install the air fitting to avoid damaging valve body housing.

Warning: Regularly check free speed (RPM) of random orbital sander. The speed (RPM) is checked with the back-up pad securely fastened without any type of sanding accessory attached to the back-up pad. The air pressure must be set to 90 PSIG with the tool running. Checking the RPM requires either a strobe or magnetic tachometer. This procedure is required after all tool repairs and whenever a tool is issued for use. If tool is operating at a higher speed than the RPM marked on the tool housing, or operating improperly, the tool must be serviced and corrected before use.

Warning: Tool RPM must never exceed abrasive/accessory RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

Warning: Do not free spin the tool away from the work surface with an abrasive sanding disc attached. The sanding disc may detach from the back-up pad causing injury.

Warning: Always start the tool with the sanding abrasive against the work. Stop the air flow to the tool as it is removed from the work.

- With power source connected at the air tool relieve hose of air pressure and disconnect tool from air supply when changing recommended accessories.
- Connect air tool to power source. Be careful NOT to depress throttle lever in the process.

Do not expose air tool to inlet pressure above 90 PSIG or (6.2 Bars).

Caution: After installing the accessory, before testing or use and/or after reassembling tool, the tool must be started at a reduced speed to check for good balance. Gradually increase tool speed. DO NOT USE if tool vibration is excessive. Correct cause, and retest to insure safe operation.

Warning: Use only appropriately sized abrasive sanding discs properly secured and centered to the backing pad provided with the air sander.

- DO NOT USE grinding wheels or cutting-off wheels.
- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.

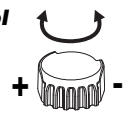
Warning: Potentially explosive atmospheres can be caused by dust and fumes resulting from sanding or grinding. Always use dust extraction or suppression systems which are suitable for the material being processed.

- Proceed with caution in unfamiliar surroundings. Hidden hazards may exist, such as electricity or other utility lines.
- Use only Dynabrade weight-mated pads to maintain low vibration levels.
- Use a vise or clamping device to hold work piece firmly in place.
- Work may generate hazardous dust.
- Always be aware of bystanders in work areas.
- Do not apply excessive force on tool or apply "rough" treatment to it.
- Always work with a firm footing, posture and proper lighting.
- Release the throttle lever in case of an interruption of the energy supply.
- Ensure that sparks and debris resulting from work do not create a hazard such as fire or explosion.
- This tool is rear exhaust. Exhaust may contain lubricants, vane material, bearing grease, and other materials flushed through the tool.

Speed Regulator Flow Control

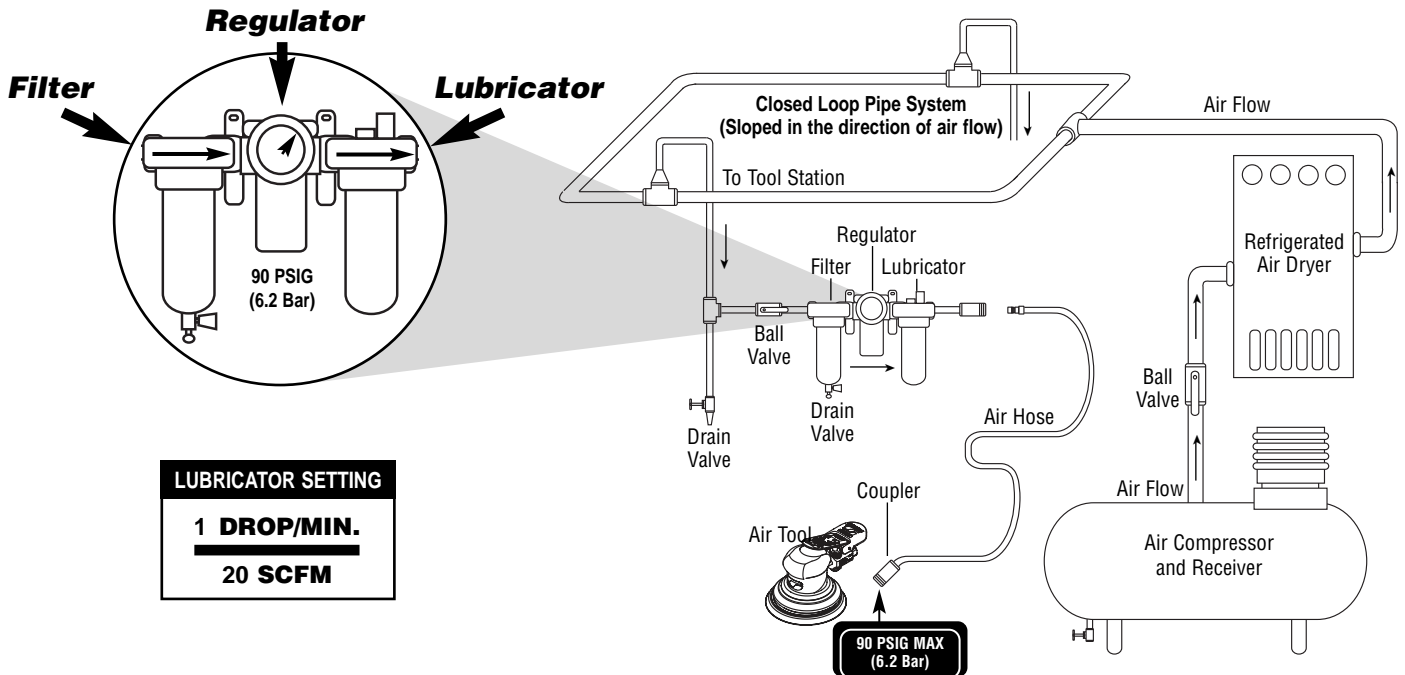
Maximum Flow: Turn Clockwise.

Minimum Flow: Turn Counter-clockwise.



Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Air System



- Dynabrade Air Power Tools are designed to operate at 90 PSIG (6.2 Bar/620 kPa) 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 of 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.

Maintenance Instructions

Important: To keep tool safe a Preventative Maintenance Program is recommended whenever portable power tools are used.

- Use only genuine Dynabrade replacement parts to ensure quality. To order replacement parts, specify **Model#**, **Serial#** and **RPM** of your air 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 Filter-Regulator-Lubricator (FRL) – Provides accurate air pressure regulation and two stage filtration of water contaminants.
- 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**: 1 pt 473 ml) is recommended.

Routine Preventative Maintenance: Check free speed of Dynorbital® Supreme regularly using a strobe or magnetic tachometer without abrasive accessory attached with 90 PSIG at inlet while tool is running. Always check tool speed after any maintenance or repair. If tool is operating at a higher RPM (speed) than marked on the housing, or operating improperly, the tool must be corrected before use.

- 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®).
- A Tune-Up Kit is available, P/N **96024**.
- Air tool stampings must be kept legible at all times, if not, reorder and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM.
- Blow air supply hose out prior to initial use.
- Visually inspect air hoses and fittings for frays, visible damage and signs of deterioration. Replace damaged or worn components.
- Refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for safety information.

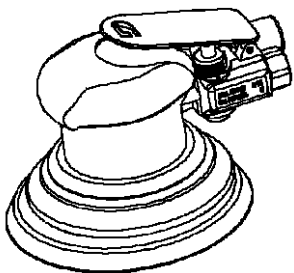
After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the air line and start the tool a few times to lubricate air motor. Check for excessive tool vibration.

Handling and Storage:

- Protect tool inlet from debris (See Notice Below).
- **DO NOT** carry tool by air hose.
- 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.

Notice

All Dynabrade motors use the highest quality parts and materials 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.



Lifetime Warranty

All 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 lifetime of the tool. Upon examination and review at our factory, Dynabrade shall confirm that the tool qualifies for warranty status, and will repair or replace the tool at no charge to the customer. Normally wearable parts and products are NOT covered under this warranty. Uncovered items include bearings, contact wheels, rotor blades, regulators, valve stems, levers, shrouds, guards, O-rings, seals, gaskets and other wearable parts. Dynabrade's warranty policy is contingent upon proper use of our tools in accordance with factory recommendations, instructions and safety practices. It shall not apply to equipment that has been subjected to misuse, negligence, accident or tampering in any way so as to affect its normal performance. Dynabrade will not honor lifetime warranty on unregistered tools. A one-year warranty will be honored on all unregistered portable pneumatic power tools. Lifetime warranty applies only to portable pneumatic tools manufactured by Dynabrade, Inc. in the USA. Lifetime warranty applies only to the original tool owner; warranty is non-transferable.

For Models:

56800, 56803, 56804, 56815, 56818, 56819
 56826, 56829, 56830, 56840, 56843, 56844
 56850, 56853, 56854, 56859, 56862, 56863
 56870, 56873, 56874, 56880, 56883, 56884
 56890, 56893, 56894

Dynorbital® Supreme

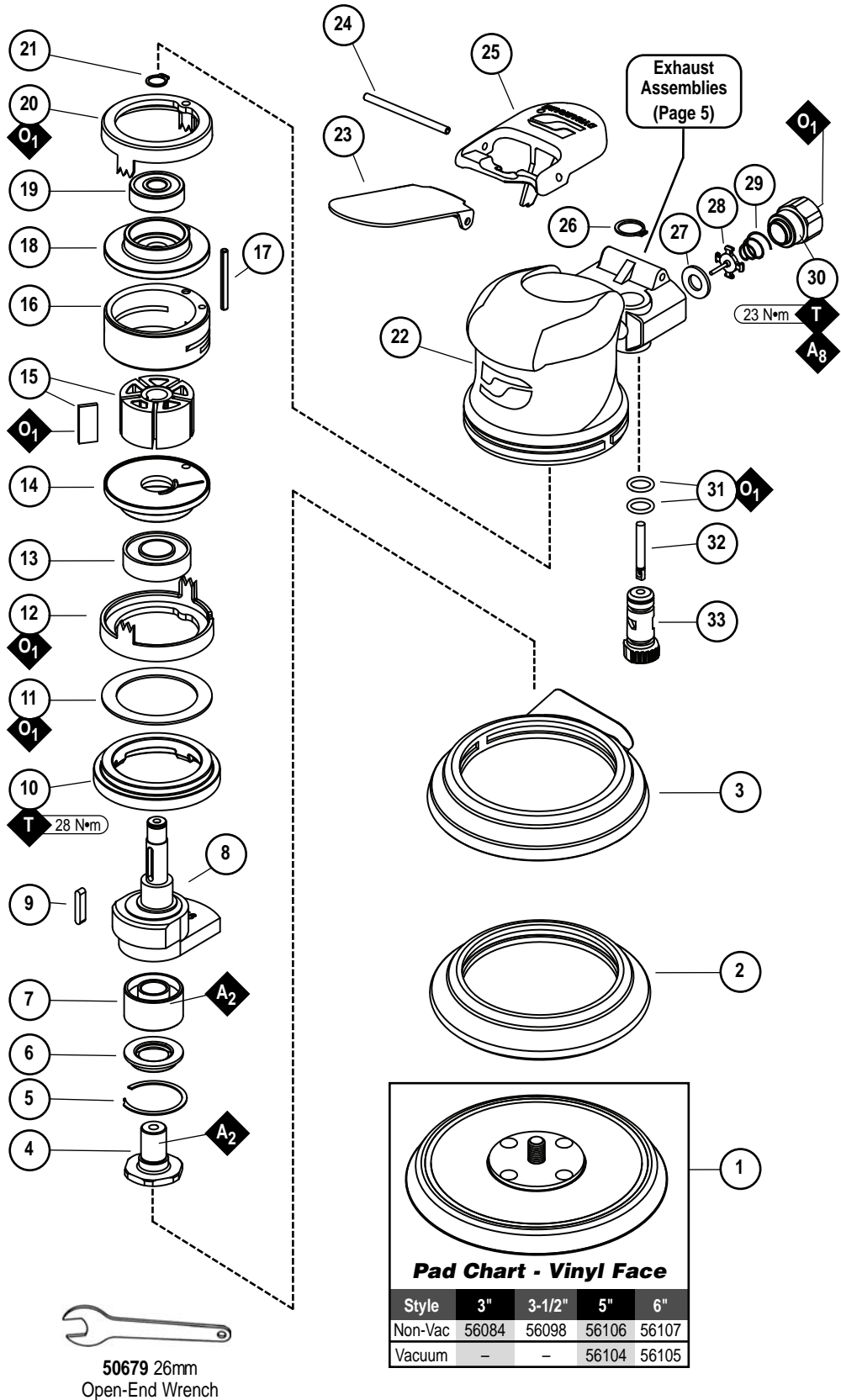
Complete Assembly

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

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.

Index Key

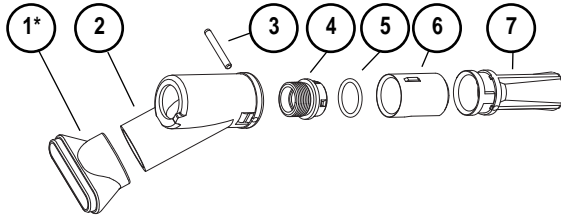
No.	Part #	Description		
1	Back-Up Pads - See Chart			
2	Non-Vacuum Shroud			
	54458	3-1/2" (3/32" & 3/16" Orbit)		
	54459	3-1/2" (3/8" Orbit)		
	56051	5" & 6"		
3	Vacuum Shroud			
	57084	3-1/2"		
	69362	5"		
	69363	6"		
4	57069	Balancer Shaft		
5	95630	Snap Ring		
6	59084	V-Seal		
7	56052	Bearing		
8	Motor Shaft Balancer			
	Orbit	3-1/2"	5"	6"
	3/8"	56380	56381	56382
	3/16"	57060	57061	57062
	3/32"	57159	57160	57162
9	56047	Key		
10	57059	Lock Ring		
11	95973	Washer		
12	57055	Front Ring		
13	57088	Bearing		
14	57057	Front Bearing Plate		
15	57113	Rotor/Blade Set		
16	57058	Cylinder (Incl. 95971 Line-Up Pin)		
17	95971	Line-Up Pin		
18	57056	Rear Bearing Plate		
19	01206	Bearing		
20	57054	Rear Ring		
21	95626	Snap Ring		
22	Housing (See Chart - Page 8)			
23	56848	Throttle Lever - 3/8"		
	56846	Throttle Lever - 3/16"		
	56847	Throttle Lever - 3/32"		
24	94590	Pin		
25	57041	Comfort Platform		
26	95697	Retaining Ring		
27	01464	Seal		
28	01472	Tip Valve		
29	01468	Spring		
30	01494	Inlet Bushing		
31	01025	O-Ring (2)		
32	01477	Valve Stem		
33	57064	Speed Regulator		



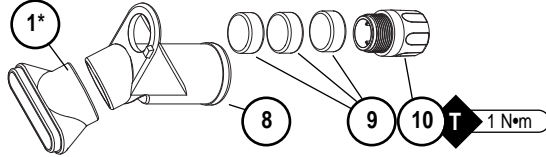
Pad Chart - Vinyl Face

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

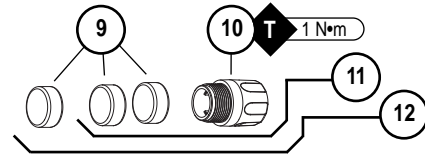
Self Generated Vacuum



Central Vacuum



Non-Vacuum



Index Key

No.	Part #	Description	No.	Part #	Description
1	69364	Shroud Adapter (5" & 6")	7	57067	Vac Tube
2	57083	Vacuum Adapter	8	57093	Central Vacuum Adapter
3	96197	Dowel Pin	9	56027	Muffer Insert (3)
4	57066	Muffer Body	10	69359	Muffer Body
5	95526	O-Ring	11	69272	Muffer Assembly
6	69353	Vac Nozzle	12	69273	Muffer Assembly

Optional: 30 quantity Muffer Insert available, P/N 56054. * For use on 5" & 6" Diameters Only.

Motor Assembly/Disassembly Instructions – Dynorbital® Supreme

Important: Manufacturers warranty is void if tool is disassembled before warranty expires.

A complete Repair Kit, part number **57098**, is available which includes special tools for correct disassembly/assembly of tool.

To Disassemble

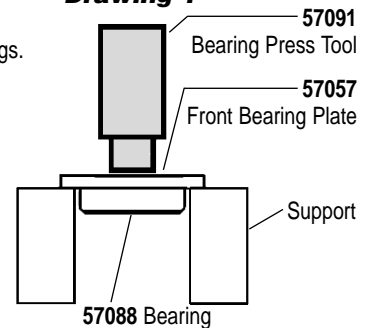
1. Disconnect tool from power source.
2. Invert machine and secure in vice, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
3. Remove sanding pad with 26 mm open-end wrench (supplied with sander) and shroud or overskirt.
4. Insert **56058** Lock Ring Tool (supplied in **57098** Repair Kit) into corresponding tabs of lock ring and unscrew. Motor may now be lifted out for service.
Note: To get it started try using 26 mm wrench for leverage or rock the motor back and forth to loosen up the rings.
5. Remove lock ring, washer, front ring and rear ring from motor. Upper motor may now be disassembled. Remove **95626** Snap Ring.
6. Remove the rear plate and the cylinder assembly by securing the cylinder in a bearing separator gripped on the cylinder exhaust and extra pocket area. Push the motor shaft balancer through the bearing.
7. Remove the rotor, vanes and rotor key from the motor shaft balancer. Remove the front plate using a small (#2) arbor press. Support the edges of the front plate while pressing on the small end of the motor shaft balancer.
 - a.) If, during step 7, the front plate and **57088** Bearing remain together, press **57088** Bearing out of the front plate using **57091** Press Tool (supplied in **57098** Repair Kit) as shown in **Drawing 1**.
 - b.) If, during step 7, **57088** Bearing remains on the motor shaft balancer, it can be removed with a bearing separator.
9. Remove **01206** Bearing from the rear plate by using a bearing press tool.
10. Disassemble the balancer assembly as follows:
 - a.) Place motor shaft assembly into a soft jaw vise. Using a thin screwdriver, pick out the end of **95630** Snap Ring and peel out. This will loosen the balancer assembly.
 - b.) Screw the threaded portion of the **56056** Bearing Puller (supplied in **57098** Repair Kit) into the **57069** Balancer Shaft and heat the outside of the motor shaft balancer to approximately 200° F (approximately 10 seconds with a propane torch). Now, using the slider weight, pull the assembly out.
 - c.) Press off **56052** Bearing with a bearing separator and remove v-seal.
11. If during step 10, the **56052** Bearing remains in the motor shaft balancer, it can be removed by the heating the shaft balancer again and using either an inside bearing puller or a blind hole bearing puller.

To Assemble:

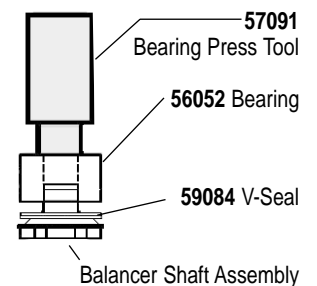
Important: Be certain parts are clean and in good repair before assembling.

1. Assemble the balancer assembly as follows:
 - a.) Install **95630** Snap Ring onto balancer shaft. Install **59084** V-Seal with the flat side facing up.
 - b.) Apply 1 drop of #271 Loctite® (or equivalent), spread over several places around the inside diameter of the **56052** Bearing and the outside diameter of the **57069** Balancer Shaft.
 - c.) Use the small end of the **57091** Bearing Press Tool and arbor press to install the **56052** Balancer Bearing with the seal side facing the v-seal. **Note:** The inner race of the bearing must sit against the step on the balancer shaft. (Shown in **Drawing 2**.)
2. Place the motor shaft balancer in a soft jaw vise with large end-up.
3. Apply 1 drop of #271 Loctite® (or equivalent) and spread over several places around the outside diameter of the **56052** Bearing and slide balancer assembly into the motor shaft balancer until **56052** Bearing is firmly seated at bottom. Squeeze **95630** Snap Ring into groove in motor shaft balancer to complete the assembly. Remove from vise.
4. Press **57088** Bearing onto the motor shaft balancer down to the shoulder as shown in **Drawing 3**.
5. Press **57057** Front Bearing Plate onto **57088** Bearing as shown in **Drawing 4** and check for smooth rotation.

Drawing 1



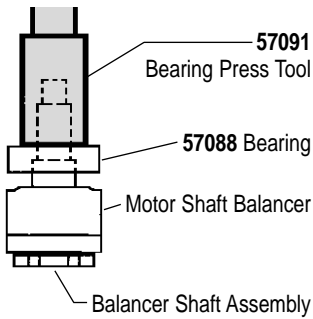
Drawing 2



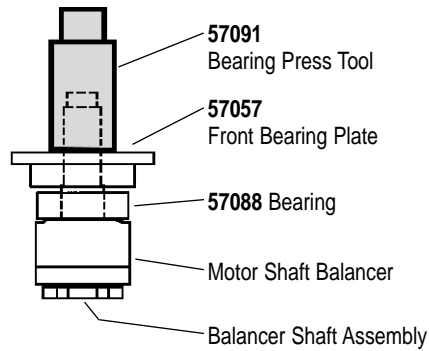
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Motor Assembly/Disassembly Instructions – Dynorbital® Supreme (Cont.)

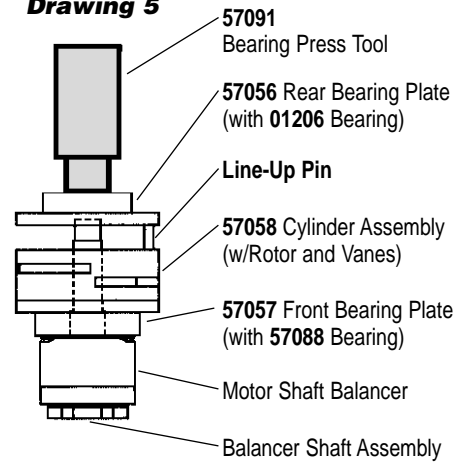
Drawing 3



Drawing 4



Drawing 5



Special Note: For All 3/8" Orbit Models

The **57059** Lock Ring, **95973** Washer and **57055** Front Ring must be placed over the Motor Shaft Balancer before the **57057** Front Bearing Plate is pressed on.

6. Place the **56047** Rotor Key and rotor on the motor shaft balancer. Place the vanes into the rotor slots. **Note:** Vanes should be lightly lubricated with Dynabrade Air Lube P/N **95842** (or equivalent) before installation.
7. Place **57058** Cylinder Assembly over rotor. The "short" line-up pin goes toward the front plate.
8. Place **57056** Rear Bearing Plate (with **01206** Rear Bearing pressed into place) over shaft and "long" end of line-up pin and press fit in place as shown in **Drawing 5**.
9. Place **95626** Snap Ring in groove.
10. Place **57054** Rear Ring over the rear plate and line-up pin. Turn the motor over and place **57055** Front Ring over the front plate making sure that the "legs and fingers" on the front and rear rings line-up. Also the small cut-outs on both rings should line-up with each other.
11. Place **95973** Washer and **57059** Lock Ring onto the front ring with 1 drop of pneumatic tool oil spread between the washer and lock ring.
12. Secure motor housing in vise, using **57092** Collar or padded jaws. Spread 2-3 drops of pneumatic tool oil around the housing bore for ease of insertion of motor assembly. Slide motor assembly into secured housing. **Note:** Be certain line-up pin enters the pocket in the bottom of the housing and the "legs" of the rings stay in line.
13. Tighten lock ring with **56058** Lock Ring Tool to 28 N•m/250 in. - lbs. Attach shroud or overskirt and weight-mated sanding pad.

Tool Assembly Complete. Please allow 30 minutes for adhesives to cure before operating tool.

Valve and Speed Regulator Assemblies:

1. Secure housing in vice using **57092** Collar or padded jaws.
2. Remove **01494** Inlet Bushing, **01468** Spring, **01472** Tip Valve and **01464** Seal from housing. Remove **94590** Pin from housing, lever and comfort platform.
3. Remove **95697** Snap Ring. Press the speed regulator and valve stem out of the housing. Remove the **01025** O-Rings (2).
4. Place new **01025** O-Rings (2) on the speed regulator and place in housing with valve stem. Install new **95967** Snap Ring.
5. Place new **01464** Seal in housing. Using tweezers or needle nose pliers, place the tip valve into housing so that the pin goes through the valve stem hole. Place new **01468** Spring into housing so small end is towards tip valve.
6. Spread small amount of #567 Loctite® (or equivalent) around the threads of the **01494** Inlet Bushing and tighten into housing to 23 N•m/200 in. - lbs.
7. Install lever and comfort platform on housing with **94590** Pin centered on housing.

Note: Motor should operate at between 11,500 and 12,000 RPM at 6.2 bar (90 PSIG). RPM should be checked with a reed tachometer. Before operating, we recommend that 2-3 drops of Dynabrade Air Lube P/N **95842** (or equivalent) be placed directly into the air inlet with throttle lever depressed. Operate the machine for approximately 30 seconds before application to workpiece to determine if machine is working properly and safely and to allow lubricating oils to properly dispense through machine.

Loctite® is a registered trademark of the Loctite Corp.

Disc Pad Change:

1. Insert **50679** Wrench on flats of **57069** Balancer Shaft and twist off sanding pad by hand.
2. With wrench still in place, hand tighten new pad on tool.
3. No need to remove shroud or overskirt.

Required Weight of Pads:

- 3-1/2" Models — Use pad weighing 80g.
- 5" Models — Use pad weighing 100g.
- 6" Models — Use pad weighing 130g.

Preventative Maintenance Schedule

For All Dynorbital® Supreme Sanders

This service chart is published as a guide to expectant life of component parts. The replacement levels are based on average tool usage over one year. Dynabrade Inc. considers one year usage to be 1,000 hours.

LEGEND

T	Included in Tune-Up Kit.
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.



96024 Tune-Up Kit

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



57098 Full Service Repair Kit:

Includes special tools for proper disassembly/assembly of the Dynorbital® Supreme.

- Includes:
- 57092 Repair Collar
 - 56058 Lock Ring Wrench
 - 56056 Bearing Puller
 - 57091 Bearing Press Tool
 - 57099 Bearing Puller
 - 96034 12mm Hex Wrench
 - 96066 3/4" Socket

Parts Common to all Models:

Index #	Part Number	Description	Number Required	High Wear 100%	Medium Wear 70%	Low Wear 30%	Non-Wear 10%
1	See Note	Back-Up Pad	1				X
2	See Note	Lip-Seal Shroud	1			X	
3	See Note	Vacuum Shroud	1				X
4	57069	Balancer Shaft	1				X
5	95630	Snap Ring	1			L	
6	59084	V-Seal	1		T		
7	56052	Bearing	1		T		
8	See Note	Motor Shaft Balancer	1				X
9	56047	Key	1		T		
10	57059	Lock Ring	1			X	
11	95973	Washer	1				X
12	57055	Front Ring	1			X	
13	57088	Bearing	1		T		
14	57057	Front Bearing Plate	1			X	
15	57113	Rotor/Blade Set	1	T			
16	57058	Cylinder	1			X	
17	95971	Line-Up Pin	1		T		
18	57056	Rear Bearing Plate	1			X	
19	01206	Bearing	1		T		
20	57054	Rear Ring	1		T		
21	95626	Snap Ring	1		T		
22	See Note	Housing	1				X
23	See Note	Throttle Lever	1			X	
24	94590	Pin	1		T		
25	57041	Comfort Platform	1			X	
26	95697	Retaining Ring	1		T		
27	01464	Seal	1		T		
28	01472	Tip Valve	1		T		
29	01468	Spring	1		T		
30	01494	Inlet Bushing	1				X
31	01025	O-Ring	2		T		
32	01477	Valve Stem	1		T		
33	57064	Speed Regulator	1			X	
Machine Exhaust Parts (Reference page 5 for your machines specific components.)							
1	69364	Shroud Adapter	1			X	
2	57083	Vacuum Adapter	1			X	
3	96197	Dowel Pin	1			L	
4	57066	Muffler Body	1			X	
5	95526	O-Ring	1		T		
6	69353	Vacuum Nozzle	1			D	
7	57067	Vacuum Tube	1			X	
8	57093	Central Vacuum Adapter	1			X	
9	56027	Muffler Inserts	3	T			
10	69359	Muffler Body	1			X	

Note: Please refer to page 4 of tool manual for specific part number.

Complete Model Description/Housing Number

3/8" Orbit Models

Model Number	Vacuum Description	Housing Number
56870	3-1/2" Non-Vacuum	58291
56873	3-1/2" Self Generated Vacuum	58292
56874	3-1/2" Central Vacuum	58293
56880	5" Non-Vacuum	58294
56883	5" Self Generated Vacuum	58295
56884	5" Central Vacuum	58296
56890	6" Non-Vacuum	58297
56893	6" Self Generated Vacuum	58298
56894	6" Central Vacuum	58299

3/16" Orbit Models

Model Number	Vacuum Description	Housing Number
56800	3-1/2" Non-Vacuum	57281
56803	3-1/2" Self Generated Vacuum	57282
56804	3-1/2" Central Vacuum	57283
56815	5" Non-Vacuum	57284
56818	5" Self Generated Vacuum	57285
56819	5" Central Vacuum	57286
56826	6" Non-Vacuum	57289
56829	6" Self Generated Vacuum	57290
56830	6" Central Vacuum	57291

3/32" Orbit Models

Model Number	Vacuum Description	Housing Number
56840	3-1/2" Non-Vacuum	57693
56843	3-1/2" Self Generated Vacuum	57721
56844	3-1/2" Central Vacuum	57722
56850	5" Non-Vacuum	57690
56853	5" Self Generated Vacuum	57691
56854	5" Central Vacuum	57697
56859	6" Non-Vacuum	57695
56862	6" Self Generated Vacuum	57698
56863	6" Central Vacuum	57696

Machine Specifications

Model Number	Vacuum Style	Tool Dia. Inch (mm)	Dia. Orbit Inch (mm)	Sound Level	Weight Pound (kg)	Length Inch (mm)
56800	Non-Vac	3-1/2 (89)	3/16 (5)	77 dB(A)	2.1 (1)	6 (152)
56803	Self-Gen	3-1/2 (89)	3/16 (5)	83 dB(A)	2.1 (1)	8-1/4 (210)
56804	Central	3-1/2 (89)	3/16 (5)	79 dB(A)	2.1 (1)	7 (178)
56815	Non-Vac	5 (127)	3/16 (5)	79 dB(A)	2.1 (1)	6-1/2 (165)
56818	Self-Gen	5 (127)	3/16 (5)	81 dB(A)	2.1 (1)	8-1/2 (216)
56819	Central	5 (127)	3/16 (5)	79 dB(A)	2.2 (1)	7-1/4 (184)
56826	Non-Vac	6 (152)	3/16 (5)	77 dB(A)	2.2 (1)	7 (178)
56829	Self-Gen	6 (152)	3/16 (5)	83 dB(A)	2.3 (1)	9 (229)
56830	Central	6 (152)	3/16 (5)	80 dB(A)	2.3 (1)	7-3/4 (197)
56840	Non-Vac	3-1/2 (89)	3/32 (2)	76 dB(A)	2.1 (1)	6 (152)
56843	Self-Gen	3-1/2 (89)	3/32 (2)	81 dB(A)	2.1 (1)	8-1/4 (210)
56844	Central	3-1/2 (89)	3/32 (2)	79 dB(A)	2.1 (1)	7 (178)
56850	Non-Vac	5 (127)	3/32 (2)	76 dB(A)	2.1 (1)	6-1/2 (165)
56853	Self-Gen	5 (127)	3/32 (2)	81 dB(A)	2.1 (1)	8-1/2 (216)

Model Number	Vacuum Style	Tool Dia. Inch (mm)	Dia. Orbit Inch (mm)	Sound Level	Weight Pound (kg)	Length Inch (mm)
56854	Central	5 (127)	3/32 (2)	80 dB(A)	2.2 (1)	7-1/4 (184)
56859	Non-Vac	6 (152)	3/32 (2)	75 dB(A)	2.2 (1)	7 (178)
56862	Self-Gen	6 (152)	3/32 (2)	83 dB(A)	2.3 (1)	9 (229)
56863	Central	6 (152)	3/32 (2)	78 dB(A)	2.3 (1)	7-3/4 (197)
56870	Non-Vac	3-1/2 (89)	3/8 (10)	79 dB(A)	2.2 (1)	6 (152)
56873	Self-Gen	3-1/2 (89)	3/8 (10)	83 dB(A)	2.3 (1)	8-1/4 (210)
56874	Central	3-1/2 (89)	3/8 (10)	80 dB(A)	2.3 (1)	7 (178)
56880	Non-Vac	5 (127)	3/8 (10)	77 dB(A)	2.3 (1)	6-1/2 (165)
56883	Self-Gen	5 (127)	3/8 (10)	83 dB(A)	2.3 (1)	8-1/2 (216)
56884	Central	5 (127)	3/8 (10)	80 dB(A)	2.3 (1)	7-1/4 (184)
56890	Non-Vac	6 (152)	3/8 (10)	79 dB(A)	2.4 (1)	7 (178)
56893	Self-Gen	6 (152)	3/8 (10)	84 dB(A)	2.5 (1.1)	9 (229)
56894	Central	6 (152)	3/8 (10)	83 dB(A)	2.4 (1)	7-3/4 (197)

Additional Specifications: Motor .28 hp (209 W) • Motor 12,000 RPM • Pad Thread 5/16"-24 Male • Air Inlet Thread 1/4" NPT
 Hose I.D. Size 1/4" (6 mm) • Air Flow Rate 18 SCFM/510 LPM • Height 3-1/2" (89 mm) • Air Pressure 90 PSIG (6.2 Bar)
 Sound Level is the pressure measurement according to the method outlined in ISO regulation ISO-15744

Overskirt/Vacuum Conversion Kits

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

Overskirt Shrouds

Protects pad edges when working near workpiece sides; maximizes dust pick-up on vacuum models.

- 57084:** 3-1/2" Diameter
- 57086:** 5" Diameter
- 57087:** 6" Diameter



Models:

3/16 Orbit

- 56800 - 3-1/2" Non-Vacuum
- 56803 - 3-1/2" Vac-Ready
- 56804 - 3-1/2" Central Vac-Ready
- 56815 - 5" Non-Vacuum
- 56818 - 5" Vac-Ready
- 56819 - 5" Central Vac-Ready
- 56826 - 6" Non-Vacuum
- 56829 - 6" Vac-Ready
- 56830 - 6" Central Vac-Ready

3/32 Orbit

- 56840 - 3-1/2" Non-Vacuum
- 56843 - 3-1/2" Vac-Ready
- 56844 - 3-1/2" Central Vac-Ready
- 56850 - 5" Non-Vacuum
- 56853 - 5" Vac-Ready
- 56854 - 5" Central Vac-Ready
- 56859 - 6" Non-Vacuum
- 56862 - 6" Vac-Ready
- 56863 - 6" Central Vac-Ready

Dynorbital® Supreme

3/16" & 3/32" Dia. Orbit, 12,000 RPM
Air Powered Random Orbital Sanders

⚠ WARNING

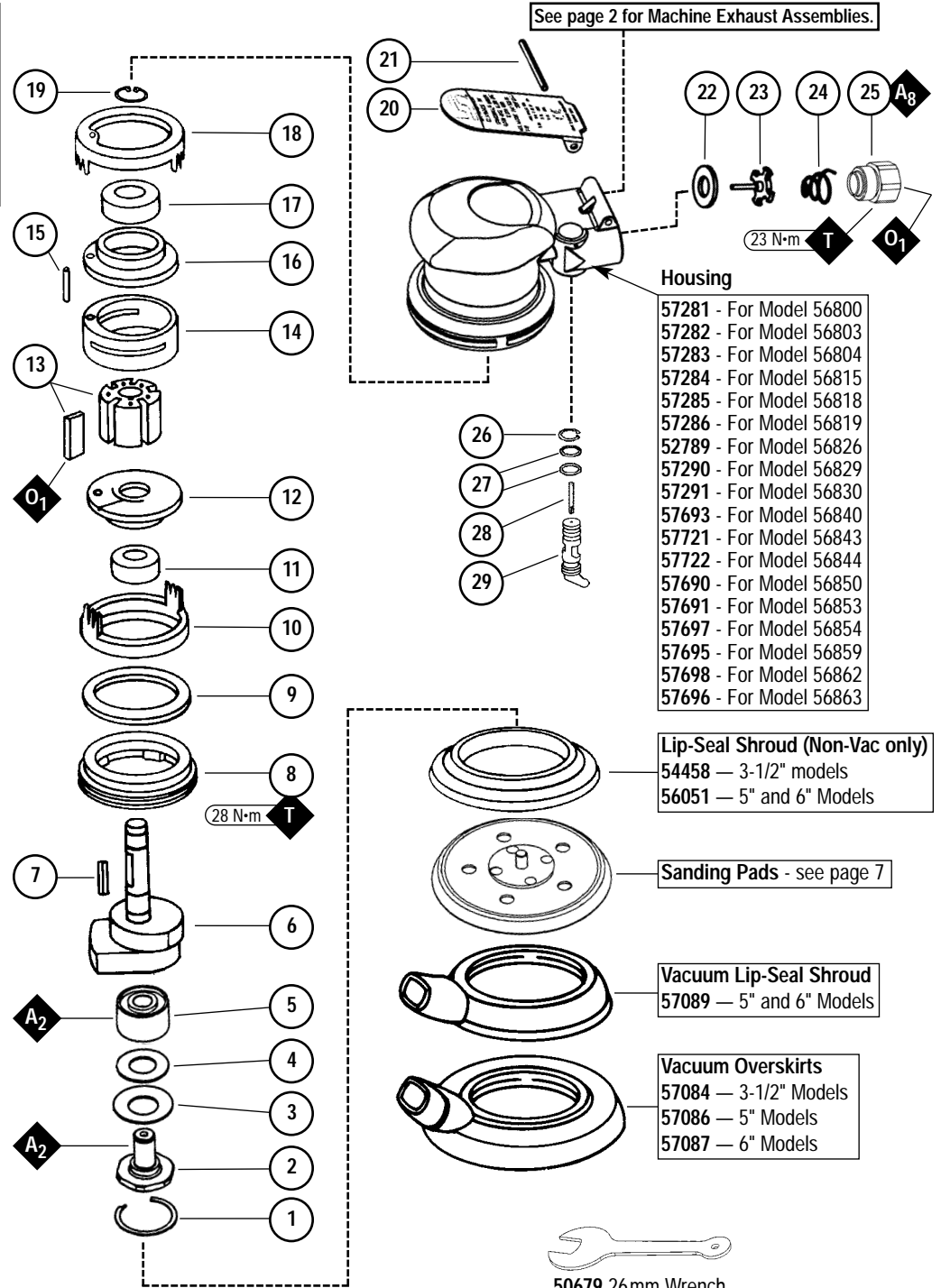
Always operate, inspect and maintain this tool in accordance with the Safety Code for portable air tools (ANSI B186.1) and any other applicable safety codes and regulations. Please refer to Dynabrade's Warning/Safety Operating Instructions for more complete safety information.

KEY

- O** Oil: O₁ = Air Lube
- A** Adhesive:
A₂ = Loctite #271
A₈ = Loctite #567
- T** Torque: N·m x 8.85 = In. - lbs.

Index Key

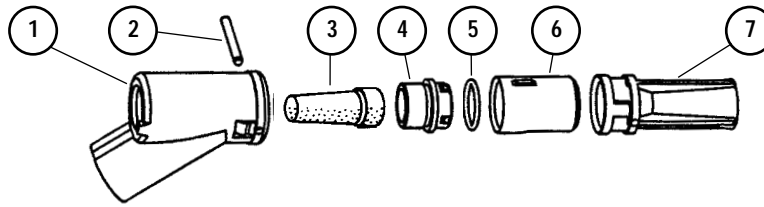
No.	Part #	Description
1	95630	Snap Ring
2	57069	Balancer Shaft
3	95628	Bearing Shield
4	56053	Bearing Seal
5	56052	Balancer Bearing
6	Motor Shaft Balancer	
	57060	3-1/2" (3/16 Orbit)
	57061	5" (3/16 Orbit)
	57062	6" (3/16 Orbit)
	57159	3-1/2" (3/32 Orbit)
	57160	5" (3/32 Orbit)
	57162	6" (3/32 Orbit)
7	56047	Key
8	57059	Lock Ring
9	95973	Washer
10	57055	Front Ring
11	57088	Bearing
12	57057	Front Bearing Plate
13	57113	Blade/Rotor Set
14	57058	Cylinder Assembly (Incl. 95971 Line-up Pin)
15	95971	Line-up Pin
16	57056	Rear Bearing Plate
17	01206	Bearing
18	57054	Rear Ring
19	95626	Snap Ring
20	Lever	
	56846	For 3/16" Models
	56847	For 3/32" Models
21	95979	Pin
22	01464	Seal
23	01472	Tip Valve
24	01468	Conical Spring
25	01494	Inlet Bushing
26	95697	Retaining Ring
27	01025	O-Ring (2)
28	01477	Valve Stem
29	57064	Speed Regulator or 57053 Recessed Speed Reg.



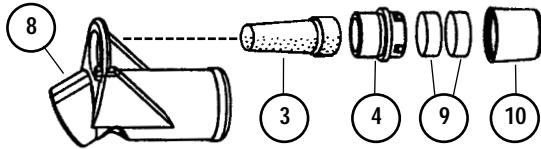
Note: To order replacement parts specify the Model# and Serial# of your machine.

Machine Exhaust Assemblies

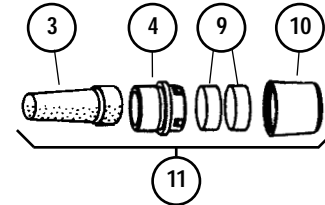
Self Generated Vacuum (Vac-Ready)/Machine Exhaust



Central Vacuum/Machine Exhaust



Non-Vacuum/Machine Exhaust



Non-Vacuum to Vacuum Conversion Kits

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

Index Key

No.	Part #	Description
1	57083	Vacuum Adapter
2	96197	Dowel Pin
3	57065	Cone Muffler
4	57066	Muffler Body
5	95526	O-Ring
6	57068	Vac Nozzle
7	57067	Vac Tube
8	57093	Vacuum Adapter
9	56027	Muffler Insert (2)
10	56028	Muffler Cap
11	57112	Muffler Assembly

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

Vacuum Conversion Instructions

To Disassemble:

1. Disconnect tool from power source. Invert machine and secure in vise, using **57092** Collar (supplied in **57098** Repair Kit) or padded jaws.
2. Remove sanding pad with **50679** (26 mm) Open-End Wrench (supplied with sander) and lip-seal shroud from housing.
3. Remove **56028** Muffler Cap and **56027** Muffler Insert (2) from **57066** Muffler Body. Using a 12mm hex wrench (supplied in **57098** Repair Kit), remove muffler body and **57065** Cone Muffler from housing (not applicable for Self-Generated Vac to Central Vac).

Non-Vac to Self-Generated Vac for Hook-Up to Self-Contained Dust Collection System

1. Attach **57083** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench, attach the muffler body, cone muffler and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert dowel pin in holes until it is centered. Attach sanding pad, attach machine to portable dust collection system.

Non-Vac to Central Vac

1. Attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure the protrusions on the overskirt or shroud are aligned with the notches on the housing.
2. Using a 12 mm hex wrench, attach the muffler body and cone muffler to the housing through the central vacuum adapter.
3. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap.
4. Attach weight-mated vacuum sanding pad with **50679** (26 mm) Open-End Wrench. Attach machine to central vacuum system.

Self-Generated Vac to Central Vac

1. Remove **96197** Dowel Pin with an 1/8" drive pin. Remove **57067** Vacuum Tube from **57083** Vacuum Adapter by turning it clockwise while pulling backward.
2. Using a small flat screwdriver, pry vacuum nozzle until it is loose and then remove it by using two fingers to push and pull it until it hits the "legs" on vacuum adapter. Place vacuum tube back into vacuum adapter far enough to push the "legs" back then push vacuum nozzle and vacuum tube out the rest of way.
3. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), remove the **57066** Muffler Body, **57065** Cone Muffler and **95526** O-Ring from the housing through the adapter. Remove the o-ring from the muffler body.
4. Remove **57083** Vacuum Adapter and attach **57093** Vacuum Adapter to either **57086**, **57087** Vacuum Overskirts or **57089** Vacuum Lip-Seal Shroud. Then attach to the housing making sure that the protrusions on the overskirt or shroud are aligned with the notches on the housing.
5. Using a 12 mm hex wrench, attach the muffler body, cone muffler and o-ring to the housing through the central vacuum adapter.
6. Place muffler cap with inserts on muffler body making sure that the protrusions on the body fit in the pockets on the cap. Attach sanding pad.

Vacuum Conversion Instructions (continued)

Central Vac to Self Generated Vac

1. Remove **57093** Central Vacuum Adapter and put the **57083** Vacuum Adapter in its place.
2. Place **95526** O-Ring on the muffler body between the shoulder and the four (4) protrusions. Using a 12 mm hex wrench (supplied in **57098** Repair Kit), attach the muffler body, cone muffler and o-ring to the housing through the vacuum adapter.
3. Place vacuum nozzle into the vacuum adapter with the slots facing outward making sure that the knob on the nozzle is aligned with the slot in the adapter.
4. Place **57067** Vacuum Tube into the vacuum adapter with the grooves facing inward until the adapter "snaps" onto the tube and the tube cannot be pulled out. If the tube can be pulled out, rotate it 1/4 turn and place it back into the adapter until it "snaps".
5. Rotate tube until holes line up. Insert **96197** Dowel Pin in holes until it is centered. Attach machine to portable dust collection system.

Important Operating, Maintenance and Safety Instructions

Carefully read all instructions before operating or servicing any Dynabrade® Abrasive Power Tool.

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

Important: All Dynabrade Rotary Vane air tools must be used with a Filter-Regulator-Lubricator to maintain all warranties.

Operating Instructions:

Warning: Eye, face, respiratory, sound and body protection must be worn while operating power tools. Failure to do so may result in serious injury or death. Follow safety procedures posted in workplace.

1. With power source disconnected from tool, securely fasten abrasive/accessory on tool.
2. Install air fitting into inlet bushing of tool. **Important:** Secure inlet bushing of tool with a wrench before attempting to install the air fitting to avoid damaging valve body housing.
3. Connect power source to tool. Be careful not to depress throttle lever in the process.
4. Check tool speed with tachometer. If tool is operating at a higher speed than the RPM marked on the tool or operating improperly, the tool should be serviced to correct the cause before use.

Maintenance Instructions:

1. Check tool speed regularly with a tachometer. If tool is operating at a higher speed than the RPM marked on the tool, the tool should be serviced to correct the cause before use.
2. Some silencers on air tools may clog with use. Clean and replace as required.
3. All Dynabrade Rotary Vane air motors should be lubricated. 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 of your filter-lubricator at 2 drops per minute). Dynabrade Air Lube (P/N **95842**: 1 pt. 473 ml.) is recommended.
4. An Air Line Filter-Regulator-Lubricator must be used with this air tool to maintain all warranties. Dynabrade recommends the following: **11405** Air Line Filter-Regulator-Lubricator — Provides accurate air pressure regulation, two-stage filtration of water contaminants and micro-mist lubrication of pneumatic components. Operates 40 SCFM @ 100 PSIG has 3/8" NPT female ports.
5. Use only genuine Dynabrade replacement parts. To reorder replacement parts, specify the **Model #**, **Serial #**, and **RPM** of your machine.
6. A Motor Tune-Up Kit (P/N **96024**) is available which includes assorted parts to help maintain motor in peak operating condition.
7. Mineral spirits are recommended when cleaning the tool and parts. Do not clean tool or parts with any solvents or oils containing acids, esters, keytones, chlorinated hydrocarbons or nitro carbons.

Safety Instructions:

Products offered by Dynabrade should not be converted or otherwise altered from original design without expressed written consent from Dynabrade, Inc.



- **Important:** User of tool is responsible for following accepted safety codes such as those published by the American National Standards Institute (ANSI).
- Operate machine for one minute before application to workpiece to determine if machine is working properly and safely before work begins.
- Always disconnect power supply before changing abrasive/accessory or making machine adjustments.
- Inspect abrasives/accessories for damage or defects prior to installation on tools.
- Please refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for more complete safety information.

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.

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, contact wheels, rotor blades, etc., are not covered under this warranty.

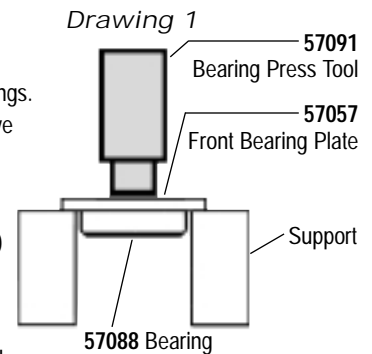
Motor Assembly/Disassembly Instructions – Dynorbital® Supreme

Important: Manufacturers warranty is void if tool is disassembled before warranty expires.

A complete Repair Kit, part number 57098, is available which includes special tools for correct disassembly/assembly of tool.

To Disassemble

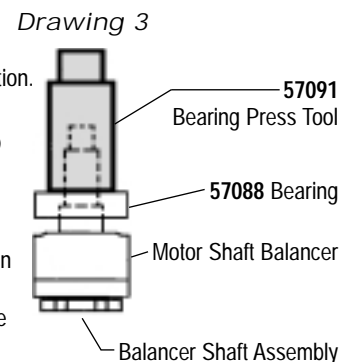
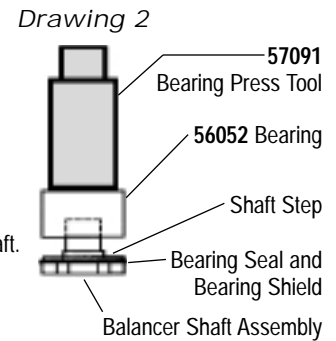
1. Disconnect tool from power source.
2. Invert machine and secure in vice, using 57092 Collar (supplied in 57098 Repair Kit) or padded jaws.
3. Remove sanding pad with 26 mm open-end wrench (supplied with sander) and shroud or overskirt.
4. Insert 56058 Lock Ring Tool (supplied in 57098 Repair Kit) into corresponding tabs of lock ring and unscrew. Motor may now be lifted out for service.
Note: To get it started try using 26 mm wrench for leverage or rock the motor back and forth to loosen up the rings.
5. Remove lock ring, washer, front ring and rear ring from motor. Upper motor may now be disassembled. Remove 95626 Snap Ring.
6. Remove the rear plate and the cylinder assembly by securing the cylinder in a bearing separator gripped on the cylinder exhaust and extra pocket area. Push the motor shaft balancer through the bearing.
7. Remove the rotor, vanes and rotor key from the motor shaft balancer. Remove the front plate using a small (#2) arbor press. Support the edges of the front plate while pressing on the small end of the motor shaft balancer.
8. a.) If, during step 7, the front plate and 57088 Bearing remain together, press 57088 Bearing out of the front plate using 57091 Press Tool (supplied in 57098 Repair Kit) as shown in Drawing 1.
b.) If, during step 7, the front plate and 57088 Bearing remains on the motor shaft balancer, it can be removed with a bearing separator.
9. Remove 01206 Bearing from the rear plate by using a bearing press tool.
10. Disassemble the balancer assembly as follows:
 - a.) Place motor shaft assembly into a soft jaw vise. Using a thin screwdriver, pick out the end of 95630 Snap Ring and peel out. This will loosen the balancer assembly.
 - b.) Screw the threaded portion of the 56056 Bearing Puller (supplied in 57098 Repair Kit) into the 57069 Balancer Shaft and heat the outside of the motor shaft balancer to approximately 200° F (approximately 10 seconds with a propane torch). Now, using the slider weight, pull the assembly out.
 - c.) Press off 56052 Bearing with a bearing separator and remove bearing seal and bearing shield.
11. If during step 10, the 56052 Bearing remains in the motor shaft balancer, it can be removed by the heating the shaft balancer again and using either an inside bearing puller or a blind hole bearing puller.



To Assemble:

Important: Be certain parts are clean and in good repair before assembling.

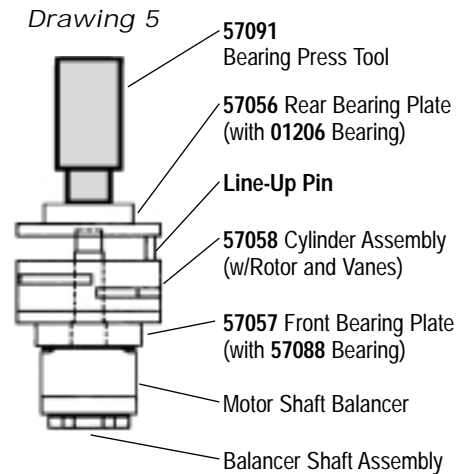
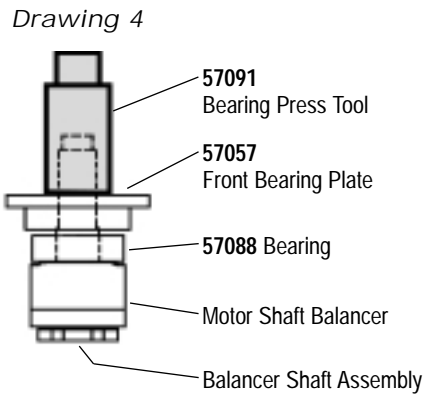
1. Assemble the balancer assembly as follows:
 - a.) Install 95630 Snap Ring onto balancer shaft. Install 95628 Shield with convex face toward hex of balancer shaft.
 - b.) Install 56053 Seal. **Note:** Be certain seal is pressed completely over shaft step.
 - c.) Apply 1 drop of #271 Loctite® (or equivalent) and spread over several places around the inside diameter of the 56052 Bearing and the outside diameter of the 57069 Balancer Shaft.
 - d.) Press fit 56052 Bearing with seal side toward hex of balancer shaft up to shaft step as shown in Drawing 2. This must be a firm press fit for proper retention of bearing.
2. Place the motor shaft balancer in a soft jaw vise with large end-up.
3. Apply 1 drop of #271 Loctite® (or equivalent) and spread over several places around the outside diameter of the 56052 Bearing and slide balancer assembly into the motor shaft balancer until 56052 Bearing is firmly seated at bottom. Squeeze 95630 Snap Ring into groove in motor shaft balancer to complete the assembly. Remove from vise.
4. Press 57088 Bearing onto the motor shaft balancer down to the shoulder as shown in Drawing 3.
5. Press 57057 Front Bearing Plate onto 57088 Bearing as shown in Drawing 4 and check for smooth rotation.
6. Place the 57090 Rotor and 56047 Rotor Key on the motor shaft balancer. Place the 56073 Vanes into the rotor slots. **Note:** Vanes should be lightly lubricated with Dynabrade Air Lube P/N 95842 (or equivalent) before installation.
7. Place 57058 Cylinder Assembly over rotor. The “short” line-up pin goes toward the front plate.
8. Place 57056 Rear Bearing Plate (with 01206 Rear Bearing pressed into place) over shaft and “long” end of line-up pin and press fit in place as shown in Drawing 5.
9. Place 95626 Snap Ring in groove.
10. Place 57054 Rear Ring over the rear plate and line-up pin. Turn the motor over and place 57055 Front Ring over the front plate making sure that the “legs and fingers” on the front and rear rings line-up. Also the small cut-outs on both rings should line-up with the square holes in the cylinder/end plate assembly.
11. Place 95973 Washer and 57059 Lock Ring onto the front ring with 1 drop of pneumatic tool oil spread between the washer and lock ring.
12. Secure motor housing in vise, using 57092 Collar or padded jaws. Spread 2-3 drops of pneumatic tool oil around the housing bore for ease of insertion of motor assembly. Slide motor assembly into secured housing.
Note: Be certain line-up pin enters the pocket in the bottom of the housing and the “legs” of the rings stay in line.
13. Tighten lock ring with 56058 Lock Ring Tool to 28 N·m/250 in. - lbs. Attach shroud or overskirt and weight-mated sanding pad.



Tool Assembly Complete. Please allow 30 minutes for adhesives to cure before operating tool.

(continued on next page)

Motor Assembly/Disassembly Instructions - Dynorbital® Supreme



Valve and Speed Regulator Assemblies:

1. Secure housing in vice using 57092 Collar or padded jaws.
2. Remove inlet bushing, 01468 Spring, 01472 Tip Valve and 01464 Seal from housing.
3. Remove 95697 Snap Ring. Press the spread regulator and valve stem out of the housing. Remove the 01025 O-Rings (2).
4. Place new 01025 O-Rings (2) on the speed regulator and place in housing with valve stem. Install new 95967 Snap Ring.
5. Place new 01464 Seal in housing. Using tweezers or needle nose pliers, place the tip valve into housing so that the pin goes through the valve stem hole. Place new 01468 Spring into housing so small end is towards tip valve.
6. Spread small amount of #567 Loctite® (or equivalent) around the threads of the first inlet bushing and tighten into housing to 23 N·m/200 in. - lbs.

Note: Motor should operate at between 9,500 and 10,000 RPM at 6.2 bar (90 PSIG). RPM should be checked with a reed tachometer. Before operating, we recommend that 2-3 drops of Dynabrade Air Lube P/N 95842 (or equivalent) be placed directly into the air inlet with throttle lever depressed. Operate the machine for approximately 30 seconds before application to workpiece to determine if machine is working properly and safely and to allow lubricating oils to properly disperse through machine.

Loctite® is a registered trademark of the Loctite Corp.

Disc Pad Change:

1. Insert 50679 Wrench on flats of 57069 Balancer Shaft and twist off sanding pad by hand.
2. With wrench still in place, hand tighten new pad on tool.
3. No need to remove shroud or overskirt.

Required Weight of Pads:

- 3-1/2" Models -- Use pad weighing 80g.
- 5" Models -- Use pad weighing 100g.
- 6" Models -- Use pad weighing 130g.

Optional Accessories



96024 Motor Tune-Up Kit:
Includes assorted parts to help maintain and repair motor.



57098 Motor Repair Kit:
Includes special tools for proper disassembly/assembly of the Dynorbital® Supreme.

Self-Contained Dust Collection Systems

Easily attach to Dynorbital® Supreme Random Orbital Sander – Self-Generated Vac-Ready Models.



- 50694 Mini-Reusable Felt Bag**
- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
 - Mounts directly to any Vac-Ready tool or to any exhaust hose.
 - Measures 11" long x 3" wide. End opens up - no need to remove bag from tool when emptying.



- 50683 Reusable Felt Bag**
- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
 - Hook 'n loop end for easy emptying.
 - Measures 14-1/2" L x 7-1/2" W.
 - Connects to vacuum hose.



- 56304 Reusable Felt Bag w/Zipper**
- New bag design features a one micron filter rating. Bag traps over 99% of vacuum particles one micron or larger.
 - Has zipper-lock end.
 - Measures 14-1/2" L x 7-1/2" W.
 - Connects to vacuum hose.



- 95986 Hose Cover (5' long cloth cover)**
- Covers air line and exhaust/vacuum hoses (not included).
 - Eliminates damage from hoses dragging on the workpiece.



- 54284 Mini-Flex-Hose System**
- 95580 Air Line 1" dia. x 28" long.
 - 50638 Flex-Hose 1" dia. x 18" long.
 - 50694 Mini-Reusable Felt Bag.
 - 95362 Rubber Connectors (3) which connect air line to exhaust hose.



- 50617 & 56303 – 6' Long Flex-Hose**
- Both systems include 6' long 50682 Flex-Hose.
 - Shown with optional 95361 Air Line (1/4" diameter).
 - 50617: Has 50683 Standard Reusable Felt Bag with hook 'n loop end for easy emptying.
 - 56303: Has 56304 Zipper-Lock Bag.



- 54290 "Bag-in-Box" System**
- 95361 Air Line 5' long.
 - 50682 Flex-Hose 1" dia. x 6' long.
 - 95362 Rubber Connectors (5, attach air line to vacuum hose).
 - 95575 Durable Box Receptacle (to house bag and store tool).
 - Sample paper bag included. Paper bag reorder:
50692 (400/case) or
50693 (24 per package.)

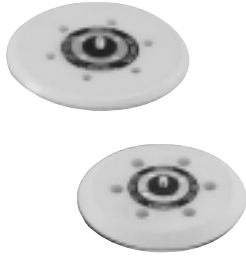
Machine Specifications

Model Number	Motor HP (W)	Motor RPM	Dia. Orbit Inch (mm)	Sound Level	Air Flow Rate CFM/SCFM (LPM)	Air Pressure PSIG (Bars)	Spindle Thread	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
56800	.28 (209)	12,000	3/16" (5)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56803	.28 (209)	12,000	3/16" (5)	83 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56804	.28 (209)	12,000	3/16" (5)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56815	.28 (209)	12,000	3/16" (5)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56818	.28 (209)	12,000	3/16" (5)	81 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56819	.28 (209)	12,000	3/16" (5)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56826	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56829	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56830	.28 (209)	12,000	3/16" (5)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)
56840	.28 (209)	12,000	3/32" (2)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6 (152)	3-3/4 (95)
56843	.28 (209)	12,000	3/32" (2)	83 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/4 (210)	3-3/4 (95)
56844	.28 (209)	12,000	3/32" (2)	76 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	7 (178)	3-3/4 (95)
56850	.28 (209)	12,000	3/32" (2)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	6-1/2 (165)	3-5/8 (92)
56853	.28 (209)	12,000	3/32" (2)	81 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.1 (1.0)	8-1/2 (216)	3-5/8 (92)
56854	.28 (209)	12,000	3/32" (2)	78 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-1/4 (184)	3-5/8 (92)
56859	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7 (178)	3-1/2 (89)
56862	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	9 (229)	3-1/2 (89)
56863	.28 (209)	12,000	3/32" (2)	79 dB(A)	3/18 (510)	90 (6.2)	5/16"-24 female	2.2 (1.0)	7-3/4 (197)	3-1/2 (89)

Additional Specifications: Air Inlet Thread 1/4" NPT • Hose I.D. Size 1/4" (8 mm)

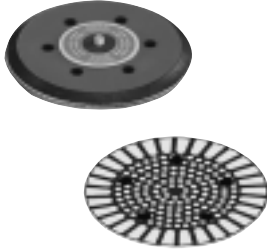
Random Orbital Sanding Pads

Perfectly balanced and weight-mated to Dynorbital® Supreme Random Orbital Sander.



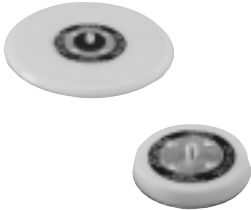
Premium Urethane Pad - Vinyl Face for PSA-Type Discs					
Pad Description	3-1/2" Dual Purpose	5"		6"	
		Non-Vac	Vac	Non-Vac	Vac
3/8" Thick, Soft Density	—	56102	56100	56103	56101
3/8" Thick, Medium Density	—	56106	56104	56107	56105
5/8" Thick, Soft Density	56097	56185	56186	56187	56188
5/8" Thick, Medium Density	56098	56175	56176	56177	56178

- Premium urethane pads, available in soft or medium density, resist heat build-up.
- New 5/8" thick pads, ideal for sanding of intricate contours.
- Unique vinyl surface pads provide excellent disc adhesion, allowing for quick removal of used discs.



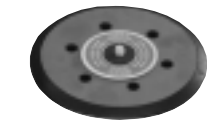
Rubber Pad, Medium Density - Vinyl Face Pads for PSA-Type Discs					
Pad Description	3-1/2" Dual Purpose	5"		6"	
		Non-Vac	Vac	Non-Vac	Vac
1/2" Thick, "Diamond Pattern Face"	—	50630	50631	50632	50633
1/2" Thick, "Post Pattern Face"	—	—	50695	—	50696

- Special rubber/vinyl face pads for PSA discs.
- "Post Pattern" design for enhanced vacuum pick-up.
- Unique vinyl surface pads provide excellent disc adhesion, allowing for quick removal of used discs.
- No need to align vacuum holes, saves time on disc changes.



Premium Urethane Pad - Hook Face Short Nap Pads for Scrim-Back Discs					
Pad Description	3-1/2" Dual Purpose	5"		6"	
		Non-Vac	Vac	Non-Vac	Vac
3/8" Thick, Soft Density	—	56157	56155	56158	56156
3/8" Thick, Medium Density	—	54325	54326	54327	54328
5/8" Thick, Soft Density	54311	56195	56196	56197	56198
5/8" Thick, Medium Density	54313	56180	56181	56182	56183

- Hook face "short nap" pads for reattachable discs.



Rubber, Medium Density - Hook Face Long Nap Pads for Non-Woven Nylon Discs					
Pad Description	3-1/2" Dual Purpose	5"		6"	
		Non-Vac	Vac	Non-Vac	Vac
1/2" Thick, Medium Density	54314	50605	50607	50606	50610

- Hook face "long nap" pads for Abrasive Impregnated Non-Woven Nylon Discs.

- 3-1/2", 5" and 6" diameter disc pads have 5/16"-24 male threaded stud.
- The 3-1/2" diameter discs, without holes, can be used on vacuum and non-vacuum 3-1/2" Dynorbital Supreme® Sanders.

Coated Abrasive Discs

Silicon Carbide Discs / PSA Mounted						
Disc Type	Abrasive Grit					
	80	100	120	150	180	220
5" Diameter						
No Holes	93051	93052	93053	93054	93055	93056
5-Hole Pattern	93060	93061	93062	93063	93064	93065
6" Diameter						
No Holes	93069	93070	93071	93072	93073	93074
6-Hole Pattern	93077	93078	93079	93080	93081	93082

Note: Other grits available upon request.

All Discs: 120 Grit and Coarser – 125/Roll; 8 Rolls = Unit.
150 Grit & Finer – 250/Roll; 4 Rolls = Unit. Complete rolls only.

Premium Aluminum Oxide Discs / PSA Mounted							
Disc Type	Abrasive Grit						
	80	100	120	150	180	220	320
3-1/2" Diameter							
*No Holes	92090	—	92092	—	92094	92095	92097
5" Diameter							
No Holes	93101	93102	93103	93104	93105	93106	—
5-Hole Pattern	93109	93110	93111	93112	93113	93114	—
6" Diameter							
No Holes	93200	93201	93202	93203	93204	93205	—
6-Hole Pattern	93215	93216	93217	93218	93219	93220	—

Note: Other grits available upon request.

*Used on either vacuum or non-vacuum 3-1/2" sander.

All Discs: 120 Grit and Coarser – 125/Roll; 10 Rolls = Unit.
150 Grit and Finer – 175/Roll; 6 Rolls = Unit. Complete rolls only.

Preventative Maintenance Schedule

For use with 3/16" & 3/32" Dia. Orbit, 12,000 RPM Air Powered Random Orbital Sanders

Index #	Part Number	Description	Number Required	High Wear 100%	Med. Wear 70%	Low Wear 30%	Non-Wear 10%
1	95626	Snap Ring	1		D		
2	57054	Rear Ring	1	D			
3	01206	Bearing	1		X		
4	57056	Rear Bearing Plate	1			X	
5	57058	Cylinder Assembly	1			X	
6	57113	Blade (5)/Rotor Set	1	X			
7	57057	Front Bearing Plate	1			X	
8	57088	Bearing	1		X		
9	57055	Front Ring	1	D			
10	95973	Washer	1				X
11	57059	Lock Ring	1				X
12	56047	Rotor Key	1		X		
13	56052	Balancer Bearing	1		X		
14	56053	Bearing Seal	1		X		
15	95628	Bearing Shield	1				X
16	57069	Balancer Shaft	1				X
17	95630	Snap Ring	1		D		
18	See Note	Lever	1				X
19	95979	Pin	1		X		
20	57065	Cone Muffler	1		X		
21	57066	Muffler Body	1			X	
22	01464	Seal	1		X		
23	01472	Tip Valve	1		X		
24	01468	Spring	1		X		
25	01494	Inlet Bushing	1				X
26	95697	Snap Ring	1		D		
27	01025	O-Ring	2		X		
28	01477	Valve Stem	1		X		
29	See Note	Speed Regulator	1			X	
30	See Note	Shaft Balancer	1				X
31	See Note	Housing	1			X	
32	See Note	Sanding pad	1		X		
33	See Note	Shroud	1			X	
Non-Vacuum Parts							
34	56027	Muffler Insert	2		X		
35	56028	Muffler Cap	1		R2		
Self-Generated Vacuum Parts							
36	57083	Self-Gen. Vac. Adapter	1			X	
37	95526	O-Ring	1		L		
38	57068	Vacuum Nozzle	1			X	
39	57067	Vacuum Tube	1			X	
Central Vacuum Parts							
40	57093	Central Vac. Adapter	1			X	

Note: Please refer to page 1 for specific part number and description.

96024 Tune-Up Kit

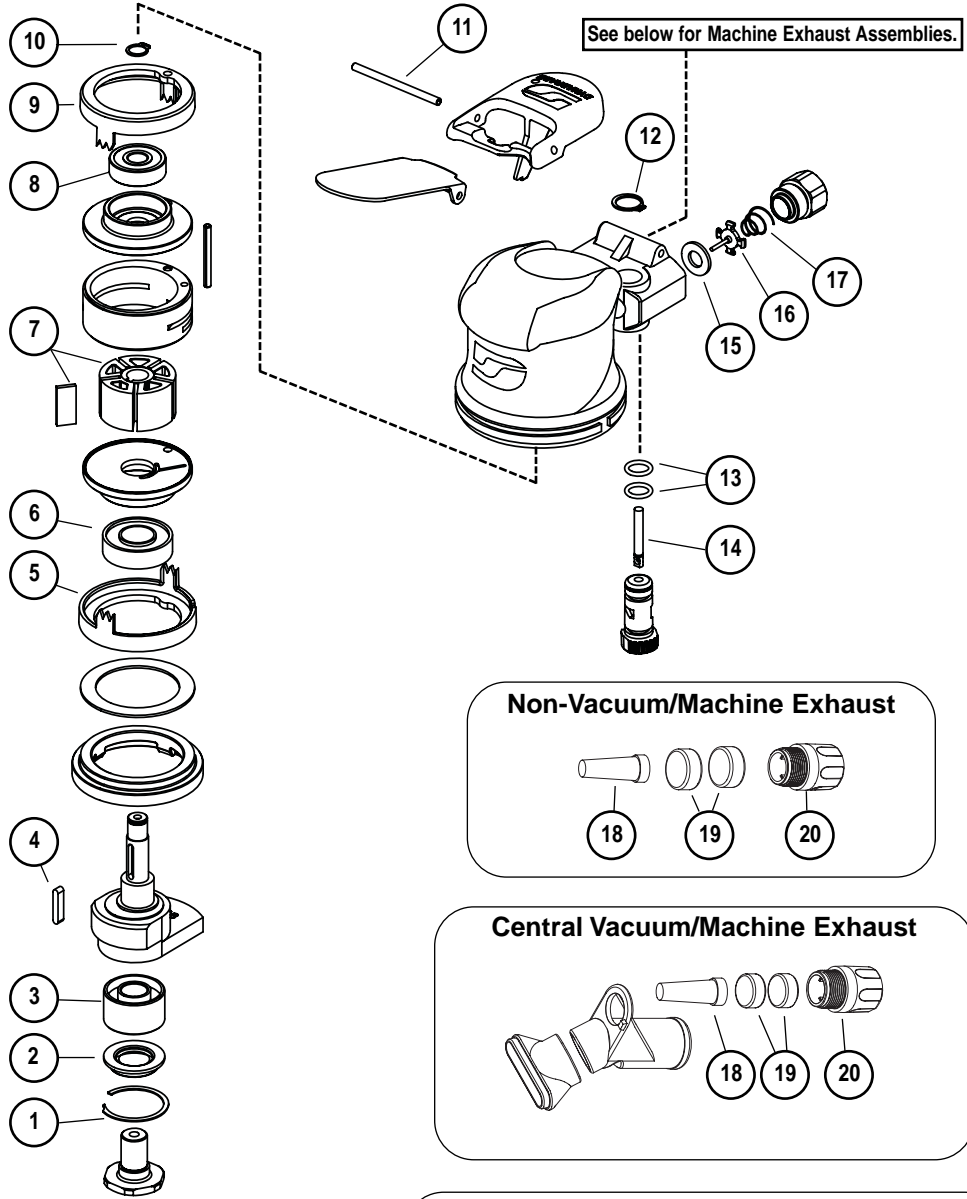
**For Use With All:
 Dynorbital® Supremes & Dynorbitals**

Air Motor and Machine Parts

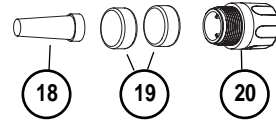
Parts included in tune-up kit are identified by part number. Not all parts are required for all models.
 Please refer to appropriate parts page for additional identification and disassembly/assembly instructions.

Index Key

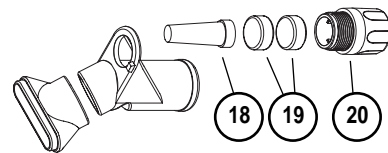
No.	Part #	Description
1	95630	Snap Ring
2	59084	V-Seal
3	56052	Balancer Bearing
4	56047	Rotor Key
5	57055	Front Ring
6	57088	Bearing
7	57113	Blade/Rotor Set
8	01206	Bearing
9	57054	Rear Ring
10	95626	Snap Ring
11	95979	Pin - Short
	94590	Pin - Long
12	95697	Snap Ring
13	01025	O-Ring (2)
14	01477	Valve Stem
15	01464	Seal
16	01472	Tip Valve
17	01468	Conical Spring
18	57065	Cone Muffler
19	56027	Muffler Insert (3)
20	69359	Muffler Body
21	95526	O-Ring



Non-Vacuum/Machine Exhaust



Central Vacuum/Machine Exhaust



Self Generated Vacuum (Vac-Ready)/Machine Exhaust

