

For Serial Number 7E1442 and Higher

Models:

51410 — 3,200 RPM

51411 — 3,200 RPM

51415 — Versatility Kit

KEY

O Oil **G** Grease **N/UP** New/Updated Part or Assy.

L Loctite/Hernon: L_2 = Loctite #271
 L_3 = Loctite #609, L_4 = Hernon #940

T Torque: $N\cdot m \times 8.85 = \text{In.} \cdot \text{lbs.}$
 $T_2 = 17 \text{ N}\cdot\text{m}$, $T_3 = 23 \text{ N}\cdot\text{m}$, $T_4 = 28 \text{ N}\cdot\text{m}$

Parts Page Reorder No. PD97•59
Effective September, 1997
Supersedes PD96•52

Mini-Dynorbital Random Orbital Sander

Air Motor and Machine Parts

! WARNING

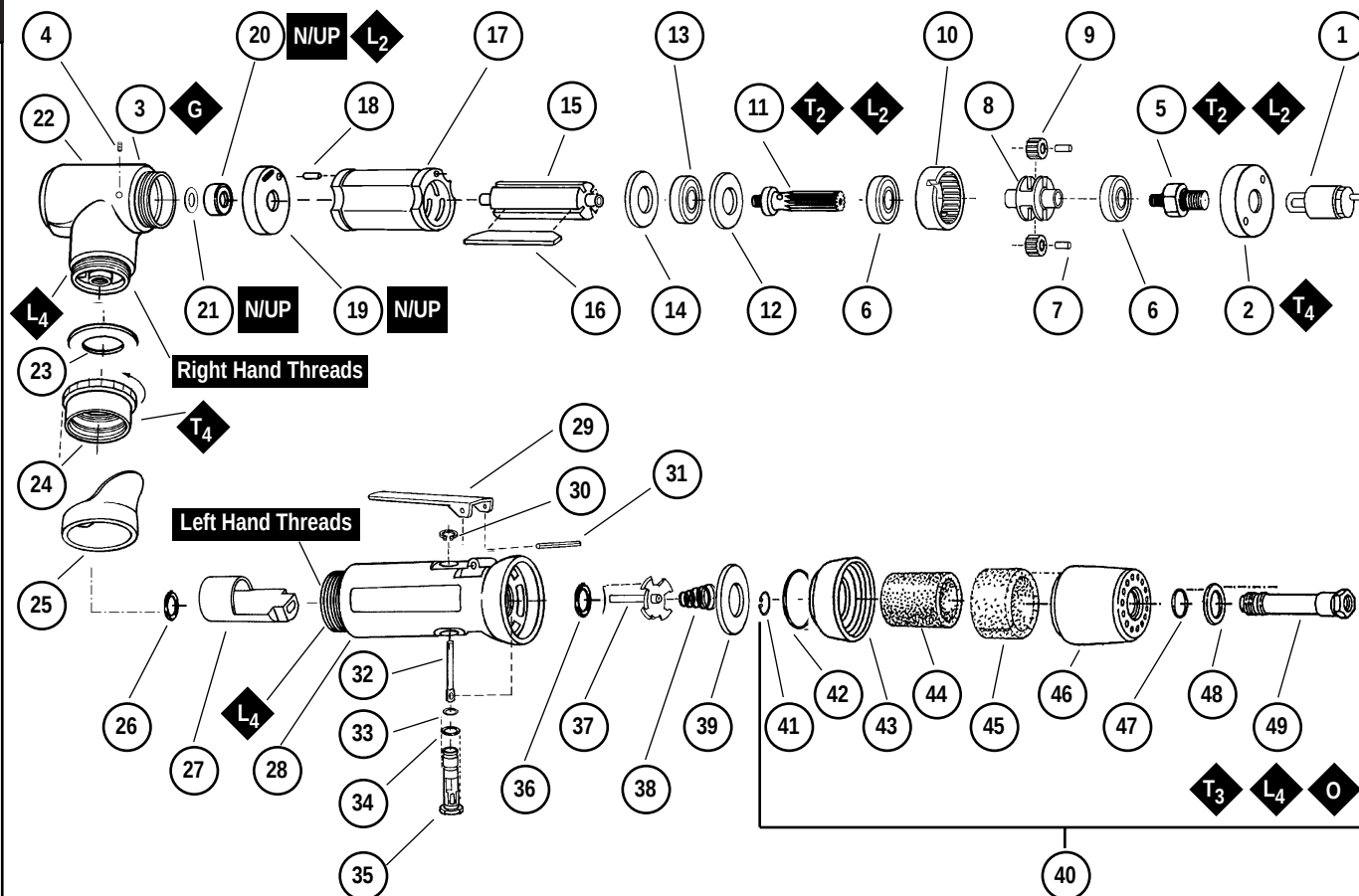
Always operate, inspect and maintain this tool in accordance with the Safety Code for portable air tools (ANSI B186.1) and any other applicable safety codes and regulations. Please refer to Dynabrade's Warning/Safety Operating Instructions for more complete safety information. See inside for Important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

New/Updated Parts - Effective Serial Number 7E1442 and Higher

02696 Bearing Replaces 02650 Bearing. • 02673 Rear Bearing Plate Replaces 01474 Rear Bearing Plate. • 02679 Shield added.

Index Key

No.	Part #	Description	No.	Part #	Description
1	54034	Sanding Head -51410	26	95523	O-Ring
	54035	Sanding Head -51411	27	01470	Insert
2	50781	Rear Exhaust Cover	28	02107	Housing - 51410
3	01041	Grease Fitting		02108	Housing - 51411
4	50784	Set Screw	29	01448	Throttle Lever
5	50782	Adapter	30	95558	Retaining Ring
6	54552	Bearing	31	12132	Pin
7	54475	Gear Shaft	32	01449	Valve Stem
8	50780	Planetary Carrier	33	95730	O-Ring
9	54519	3,200 RPM Gear	34	01024	O-Ring
10	54468	Ring Gear	35	01469	Speed Regulator
11	53151	3,200 RPM Pinion	36	01464	Seal
12	50778	Spacer	37	01472	Tip Valve
13	40544	Bearing	38	01468	Spring
14	53161	Front End Plate	39	01564	Air Control Ring
15	50777	Rotor	40	94520	Muffler Assembly
16	01480	Blade (4)	41	95711	Retaining Ring
17	01476	Cylinder	42	95438	O-Ring
18	50767	Spring Pin	43	94521	Muffler Base
19	02673	Rear Bearing Plate	44	94524	Sintered Muffler
20	02696	Bearing	45	94525	Felt Muffler
21	02679	Shield	46	94522	Muffler Cap
22	50776	Motor Housing	47	95375	O-Ring
23	01548	Gasket	48	94526	Spacer
24	01461	Lock Nut	49	94523	Inlet Adapter
25	01558	Collar			



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 air tools must be used with a Filter-Regulator-Lubricator to maintain all warranties.

Operating Instructions:

Warning: Eye, face 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.
3. 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 air motors should be lubricated. Dynabrade recommends one drop of air lube per minute for each 10 SCFM (example : if the tool specification state 40 SCFM, set the drip rate of your filter-lubricator at 4 drops per minute). Dynabrade Air Lube (P/N **95842**: 1pt. 473ml.) is recommended.
4. An air line filter-regulator-lubricator must be used with this air tool to maintain all warranties. Dynabrade recommends the following: **11289** 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 CFM @ 90 PSI 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 **96174**) is available which includes assorted parts to help maintain motor in peak operating condition. Please refer to Dynabrade's Preventative Maintenance Schedule for a guide to expectant life of component parts.
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.
- **Warning:** Hand, wrist and arm injury may result from repetitive work, motion and overexposure to vibration.

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.

Model Number	Pad Dia. Inch (mm)	Orbit Diameter Inch (mm)	Length Inch (mm)	Height Inch (mm)	Weight Pound (kg)	Air Flow Rate SCFM (LPM)	Sound Level	Motor HP (W)	Air Pressure PSI (Bars)
All Models	3/4" (19), 1-1/4" (32)	3/16" (5)	8" (203)	5-1/2" (140)	1.8 (0.8)	24 (680)	82 dBA	.31 (231)	90 (6.2)

Additional specifications: Air Inlet Thread 1/4" (6 mm) NPT • Hose Size 1/4" (6 mm)

Disassembly/Assembly Instructions - .3 Hp/7°/Rear Exhaust

Important: Manufacturer's warranty is void if tool is disassembled before warranty expires.

Notice: Dynabrade strongly recommends the use of their 52296 Repair Collar (sold separately) during assembly/disassembly activities. Failure to use this collar will highly increase the risk of damage to the valve body of this tool. Please refer to parts breakdown for part identification.

New/Updated Parts - Effective Serial Number 7E1442

02696 Bearing Replaces 02650 Bearing.

02673 Rear Bearing Plate Replaces 01474 Rear Bearing Plate.

02679 Shield added.

Motor Disassembly:

1. Disconnect tool from power source.
2. Secure air tool in vise using **52296** Repair Collar. Remove sanding head.
3. With an adjustable pin wrench, remove **50781** Rear Exhaust Cover by turning counter-clockwise.
4. Remove **50784** Set Screw and pull **50782** Adapter and planetary carrier assembly from **50776** Housing.
5. Press planetary carrier assembly from rear **54552** Bearing. Remove ring gear and gears from **50780** Planetary Carrier.
6. Secure planetary carrier in vise and remove **50782** Adapter. Press carrier from front **54552** Bearing.
7. Grab onto pinion and pull motor assembly from motor housing. Remove **50778** Spacer.
8. Press **50777** Rotor from **02673** Rear Bearing Plate. Press **02696** Rear Bearing from rear bearing plate, remove **02679** Shield.
9. Remove cylinder and rotor blades from rotor.
10. Secure rotor in vise and remove pinion from rotor by inserting a 3mm drift pin through hole in pinion and twist off (right hand threads).
11. Press pinion and rotor through **40544** Front Bearing and **53161** Front Bearing Plate.

Motor disassembly complete.

Valve Body Disassembly:

1. Position valve body in vise using **52296** Repair Collar with air inlet facing up.
2. Remove air fitting by securing **94523** Inlet Adapter with a wrench and twist air fitting from inlet adapter.
Important: **94523** Inlet Adapter must be secured before attempting to remove air fitting to avoid damaging valve body housing.
3. Remove **94523** Inlet Adapter.
4. Remove **95711** Retaining Ring from inlet adapter and separate **94521** Muffler Base from **94522** Muffler Cap. Remove sintered muffler and felt muffler.
5. Remove **01564** Air Control Ring from valve body. Using needle nose pliers, remove **01468** Spring, tip valve and seal.
6. Using a 2.5mm drift pin, tap **12132** Pin from housing and remove throttle lever.
7. Remove **95558** Retaining Ring. Push **01469** Regulator from valve body and remove O-rings.

Disassembly complete.

Motor Reassembly:

Important: Be sure parts are clean and in good repair before reassembly. Follow all grease, oil, and torque specifications.

1. Place **53161** Front Bearing Plate onto front end of **50777** Rotor (threaded end). Press **40544** Front Bearing onto rotor and front bearing plate.
2. Secure rotor in padded vise with threaded spindle facing up. Apply one drop of #271 Loctite® (or equivalent) to threads of rotor. Using a 3mm drift pin, tighten pinion onto rotor (torque 17.0 N•m/150 in. - lbs.).
3. Apply one drop of #609 Loctite® (or equivalent) to outer race of **02696** Rear Bearing and slip bearing and **02679** Shield into bearing plate.
4. Install well lubricated blades into rotor slots. Dynabrade recommends using their **95842** Dynabrade Air Lube.
5. Install cylinder over rotor with air inlet hole in cylinder wall facing away from front bearing plate. Be sure **50767** Pin lines up with pin hole in front bearing plate.
6. Press **02673** Rear Bearing plate on to rotor. Be sure that pin and air inlet hole in cylinder line up with air inlet hole and pin hole in bearing plate.
7. Place **50778** Spacer over pinion and install motor assembly into motor housing.
8. Press front **54552** Bearing onto front end of **50780** Planetary Carrier.
9. Apply one drop of #271 Loctite® to threads of **50782** Adapter. Install adapter onto planetary carrier (torque 17.0 N•m/150 in. - lbs.).
10. Install gears and **54475** Gear Shafts onto planetary carrier.
11. Slip **54468** Ring Gear over gears and press rear **54552** Bearing onto planetary carrier.
12. Slip complete planetary carrier onto pinion in motor housing. Line up slot in ring gear with **50784** Set Screw hole, install **50784** Set Screw into hole to lock motor in place.
13. Install **50781** Exhaust Cover onto housing to secure motor (torque 28 N•m/250 in. - lbs.).
14. Install sanding head onto adapter.

Motor Reassembly Complete.

Valve Body Reassembly:

1. Insert **01469** Regulator with O-rings and valve stem in place into valve body. Secure with **95558** Retaining Ring.
2. Secure valve body in vise using **52296** Repair Collar with air inlet facing upwards. Insert **01464** Seal.
3. Line up hole in valve stem with hole in housing (looking past brass bushing). Insert **01472** Tip Valve so that the metal pin passes through the hole in the valve stem. Install **01468** Spring (small end towards tip valve).
4. Assemble sintered muffler and felt muffler together and place in **94522** Muffler Cap. Install **94521** Muffler Base onto muffler cap.
5. Install **95438** O-ring into groove on muffler base. Place **95375** O-Ring and **94526** Spacer into recessed area of muffler cap.

(continued on next page)

Disassembly/Assembly Instructions (continued)

6. Slip **94523** Inlet Adapter through muffler assembly and install **95711** Retainer Ring into groove on inlet adapter.
7. Install **01564** Air Control Ring into valve body housing.
8. Apply HERNON #940 PST Pipe Sealant to threads of **94523** Inlet Adapter and install entire muffler assembly onto valve body (torque 23.0 N•m/200 in. - lbs.).
9. Replace air fitting. Secure inlet adapter with a wrench before tightening air fitting.
10. Install throttle lever and **12132** Pin.

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

Important: Motor should now be tested for proper operation at 90 PSI. If motor does not operate properly or operates at a higher RPM than marked on the tool, the tool should be serviced to correct the cause before use. Before operating, place 2-3 drops of Dynabrade Air Lube (P/N **95842**) directly into air inlet with throttle lever depressed. Operate tool for 30 seconds to determine if tool is operating properly and to allow lubricating oils to properly penetrate motor.

Loctite® is a registered trademark of Loctite Corp.

Optional Accessories



Dynaswivel®

- Swivels 360° AT TWO PIVOT POINTS allowing the air hose to drop directly to the floor while providing superb tool handling.
- New **94300** 1/4" NPT, non-marring composite construction.

95461 – 3/8" NPT

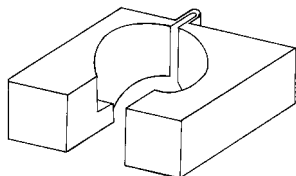
95462 – 1/2" NPT

95490 – 3/4" NPT



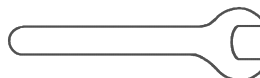
96174 Motor Tune-Up Kit

- Includes assorted parts to help maintain motor in tip-top shape.



52296 Repair Collar

- Specially designed collar for use in vise to prevent damage to valve body housing during disassembly/assembly.

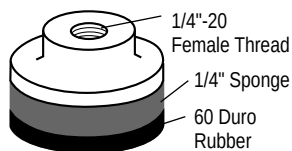


Open-End Wrenches

95262 – 14 mm open-end

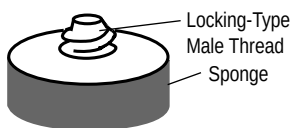
95281 – 19 mm open-end

"Medium" Dual-Density

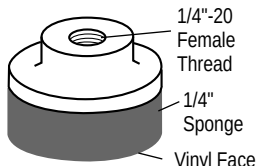


"Soft" Locking-Type

For optional **54029**, **54030** or **54035** Sanding Head.

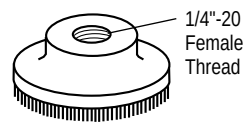


"Soft" Density



"Hook 'n Loop"

For use with abrasive impregnated non-woven nylon discs.



All pads are 5,000 RPM maximum.

3/4" & 1-3/4" Diameter Mini-Dynorbital Sanding Pads

No.	Part Dia.	Pad Face	Description/Type	Thread	Comments
54017	3/4"	Medium/Rubber	1/4"-20 Female		For PSA Discs
54018	1-1/4"	Medium/Rubber	1/4"-20 Female		For PSA Discs
54031	1-1/4"	Soft	Locking-Type		For PSA Discs
54087	3/4"	Soft/Vinyl	1/4"-20 Female		For PSA Discs
54088	1-1/4"	Soft/Vinyl	1/4"-20 Female		For PSA Discs
54089	3/4"	Hook 'n Loop	1/4"-20 Female		Non-Woven Nylon Discs
54090	1-1/4"	Hook 'n Loop	1/4"-20 Female		Non-Woven Nylon Discs

Visit our new Web Site via Industry.Net MROP On-Line: <http://www.dynabrade.industry.net>

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