For Serial No. 0B1000 and Higher

Parts Page Reorder No. PD00•14
Effective February, 2000
Supersedes PD99•15

Models:
50000 – 12,000 RPM, 1/4" Collet
50001 – 15,000 RPM, 1/4" Collet
50002 – 20,000 RPM, 1/4" Collet
50003 – 12,000 RPM, 6mm Collet
50004 – 15,000 RPM, 6mm Collet
50005 – 20,000 RPM, 6mm Collet

.4 hp/Right-Angle/Rear Exhaust
1/4" & 6mm Die Grinder
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.**

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2	**01485**	1/4" Collet Insert
	01497	6mm Collet Insert
3	**02032**	Spindle
4	**02035**	Lock Nut
5	**01486**	Felt Silencer
6	**54520**	Bearing
7	**97116**	Shim
8	**97117**	Shim
9	**97118**	Shim
10	**02623**	Gear - 12,000 RPM
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		Bottom Wick
11	**02042**	Wick - 12,000 RPM
	02044	Wick - 15 & 20,000 RPM
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12	**02043**	Wick - 12,000 RPM
	02045	Wick - 15 & 20,000 RPM
13	**02031**	Housing – Includes:
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22	**01479**	Spacer
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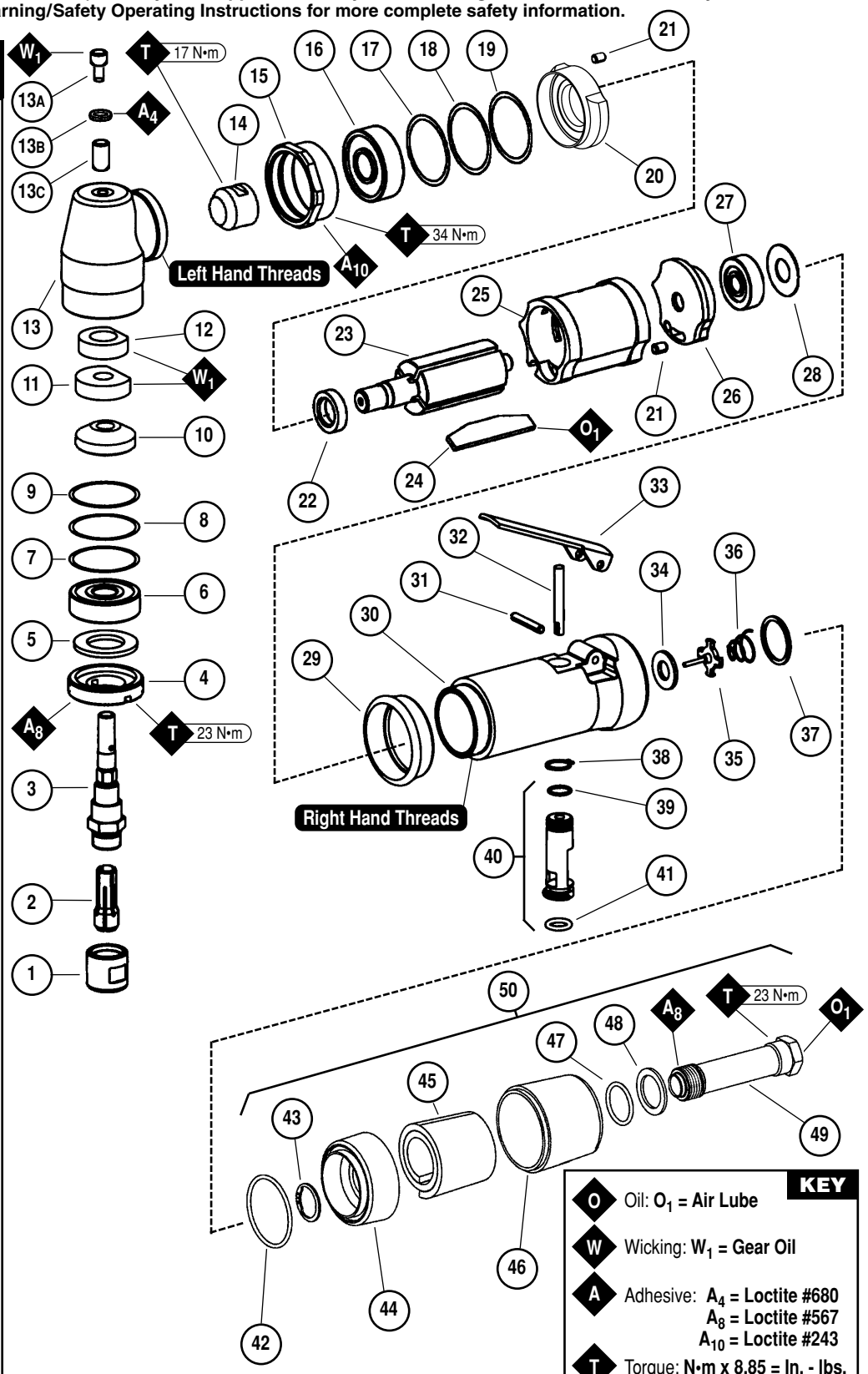
47	**95375**	O-Ring
48	**94526**	Spacer
49	**94523**	Inlet Adapter
50	**94519**	Muffler Assembly



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 state 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: **10681** Air Line Filter-Regulator-Lubricator — Provides accurate air pressure regulation, two-stage filtration of water contaminants and micro-mist lubrication of pneumatic components.
5. Lubricate wick system through angle gear head gear oil fitting with 3 plunges every **8 hours** of use for maximum gear life.
   Important: Use recommended angle gear oil only for wick system. **Do not contaminate wick with any other oil or grease product (Order 95848 Gear Oil and 95541 Gun).**
6. Use only genuine Dynabrade replacement parts. To reorder replacement parts, specify the **Model #**, **Serial #** and **RPM** of your machine.
7. A Motor Tune-Up Kit (P/N **96179**) 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.
8. 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.

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. To activate lifetime warranty, customer must register each tool at www.dynabrade.com. 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.

Model Number	Motor hp (W)	Motor RPM	Sound Level	Maximum Air Flow SCFM (LPM)	Air Pressure PSIG (Bars)	Spindle Thread	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
50000/50003	.4 (298)	12,000	85 dB(A)	21 (595)	90 (6.2)	N/A	1.2 (.5)	7-3/8 (187)	2-7/8 (73)
50001/50004	.4 (298)	15,000	83 dB(A)	21 (595)	90 (6.2)	N/A	1.2 (.5)	7-3/8 (187)	2-7/8 (73)
50002/50005	.4 (298)	20,000	86 dB(A)	21 (595)	90 (6.2)	N/A	1.2 (.5)	7-3/8 (187)	2-7/8 (73)

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

Disassembly/Assembly Instructions - Right-Angle Tools

Important: Manufacturer's warranty is void if tool is disassembled before warranty expires.
Please refer to parts breakdown for part identification.

Gear Casing Disassembly:

Important: Inlet adapter must be secured before attempting to remove air fitting to avoid damaging composite motor housing.

1. Secure motor housing in vise using **52296** Repair Collar or padded jaws, so that **02031** Right-Angle Head Housing is facing up.
2. Using an adjustable pin wrench turn **02035** Lock Nut counter-clockwise.
3. Remove spindle from **02031** Housing.
4. Using a screw driver, pick wicks (2) out from housing (**Note:** wick may already be removed with the spindle).
5. Using a 34mm crows foot wrench, remove **01461** Lock Nut by turning counter-clockwise.
6. Place **02031** Housing in an arbor press with spindle opening facing down.
7. Using a 9mm drift pin press out **02041** Gear Oil Plate and **02033** Bearing (located on the top of the **02031** Housing).

Motor Disassembly:

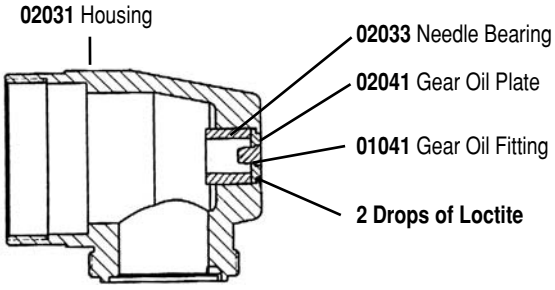
1. Remove tool from vise.
2. Pull motor assembly from housing assembly.
3. Disassemble motor assembly by pressing **02037** Rotor from **02696** Rear Bearing. Press **02696** Bearing out of **02676** Rear Bearing Plate.
4. Remove **01476** Cylinder and **01480** Blades.
5. Place **02037** Rotor in a vise with soft jaws and unscrew pinion using a counter-clockwise direction.
6. Slip **01478** Front Bearing Plate off of **02037** Rotor.
7. Remove **01479** Spacer from **02037** Rotor.
8. Remove **02649** Bearing from **01478** Front Bearing Plate.
9. Remove shims from **01478** Front Bearing Plate.

Valve Body Disassembly:

1. Secure motor housing in **52296** Repair Collar or padded jaws with motor opening facing down.
2. Unscrew inlet adapter turning counter-clockwise.
3. Using needle nose pliers, remove **01468** Spring, **01472** Tip Valve, and **01464** Seal.
4. Resecure housing in vise making sure throttle lever **01448** Throttle Lever and **12132** Pin are accessible.
5. Using a 2.5mm diameter drift pin and hammer, tap **12132** Pin until it falls out of the housing and remove throttle lever.
6. Remove from vise.
7. Remove **95558** Retaining Ring using retaining ring pliers.
8. Push **01469** Speed Regulator from housing.

Gear Casing Assembly:

1. Press **01041** Gear Oil Fitting into **02041** Gear Oil Plate with **01041** Gear Oil Fitting Head recessed into **02041** Gear Oil Plate.
2. Place 2 drops of #680 Loctite® (or equivalent) at location below.
3. Place **02041** Gear Oil Plate into **02031** Housing as shown.
4. Press **02033** Needle Bearing into **02031** Housing as shown.



Motor Assembly:

Important: Make sure parts have been cleaned and thoroughly inspected for wear and damage before assembling.

1. Place **02037** Rotor in soft jaw vise with threaded spindle facing upward.
2. Slip **01479** Spacer onto **02037** Rotor.
3. Place a .002" Shim into **01478** Front Bearing Plate as an initial spacing then slip **02649** Bearing into **01478** Front bearing Plate. Slip assembly onto **02037** Rotor. Tighten pinion onto rotor torque 17 N•m, 150 in.-lbs.
4. Check clearance between rotor and bearing plate by using a .001" feeler gauge. Clearance should be at .001" to .0015". Adjust clearance by repeating steps 1-3 with different shim if necessary.
5. Once proper rotor gap clearance is achieved, install well lubricated **01480** Blades into **02037** Rotor (use **95842** Dynabrade Air Lube or equivalent).
6. Install **01476** Cylinder so it rests against the **01478** Bearing Plate (making sure inlet holes of cylinder are in alignment with inlet holes in **02676** Rear Bearing Plate).
7. Press **02696** Bearing into **02676** Rear Bearing Plate. Press these parts onto **02037** Rotor. **Important:** Fit must be snug between bearing plates and cylinder. If too tight, rotor will not turn freely. Rotor must then be lightly tapped at press fit end so it will turn freely while still maintaining a snug fit. A loose fit will not achieve the proper preload of motor bearings.
8. Secure housing in vise using **52296** Repair Collar or padded jaws so that motor cavity faces upward.
9. Install motor assembly in housing, make sure motor drops all the way into housing. (**Note:** Align the nodes in side of housing).
10. Apply Loctite® #567 to threads, and screw **01461** Lock Nut (left-hand threads), onto **02031** Housing.
11. Thread **02031** Housing and **01461** Lock Nut Assembly onto motor housing assembly (right-hand threads), drawing the two assemblies together.
12. Adjust orientation of throttle lever to agree with your grip and comfort level allowing for additional rotation due to tightening to set torque.

(continued on next page)

Disassembly/Assembly Instructions - (continued)

13. Using a 34mm crow foot and a torque wrench set at (34 N•M/300 in. - lbs.), secure the gear case housing and lock nut in place.
14. Slip **01547** Insulator Collar over **01461** Lock Nut.
15. Press **54520** Bearing and then gear onto spindle shaft, making sure drive hexes are aligned.
16. Place **01486** Silencer over spindle shaft at threaded end.
17. Slip bottom wick over spindle shaft, then place top wick over spindle shaft.
18. Insert spindle shaft assembly into **02031** Housing.
19. Torque **02035** Lock Nut to 23 N•m, 200 in. - lbs.
20. Shim spindle assembly using shims if required.
    Note: When assembling angle-head assembly onto the motor housing, make sure flats on the wicks are both facing the pinion or tool will not run.

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

Important: 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. Motor should now be tested for proper operation at 90 PSIG. 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.

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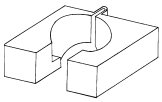
Accessories

96179 Motor Tune-Up Kit
- Includes assorted parts to help maintain and repair motor.



52296 Repair Collar
- Specially designed collar for use in vise to prevent damage to valve body of tool during disassembly/assembly.

Dynaswivel®
- Swivels 360° at two locations which allows an air hose to drop straight to the floor, no matter how the tool is held.

  94300 1/4" NPT.

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

  95842: 1pt. (473 ml)

  95843: 1gal. (3.8L)

Dynabrade Angle Gear Oil
- Specifically formulated to saturate wick system in right angle gear head.
- Easy to apply using Dynabrade P/N **95541** Oil Gun. Apply 3 plunges every 8 hours of operation into tools lubrication fitting.

  95848: 2 oz. tube

  95849: 10 oz. tube

Visit Our Web Site: www.dynabrade.com

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