

**For Serial No.8F1000 and Higher**

Parts Page Reorder No. PD01•87  
Effective September, 2001  
Supersedes PD97•27

# .7Hp/Straight-Line/Rear Exhaust Die Grinder

## Air Motor and Machine Parts

Models:

52100 — 950 RPM, 1/4"

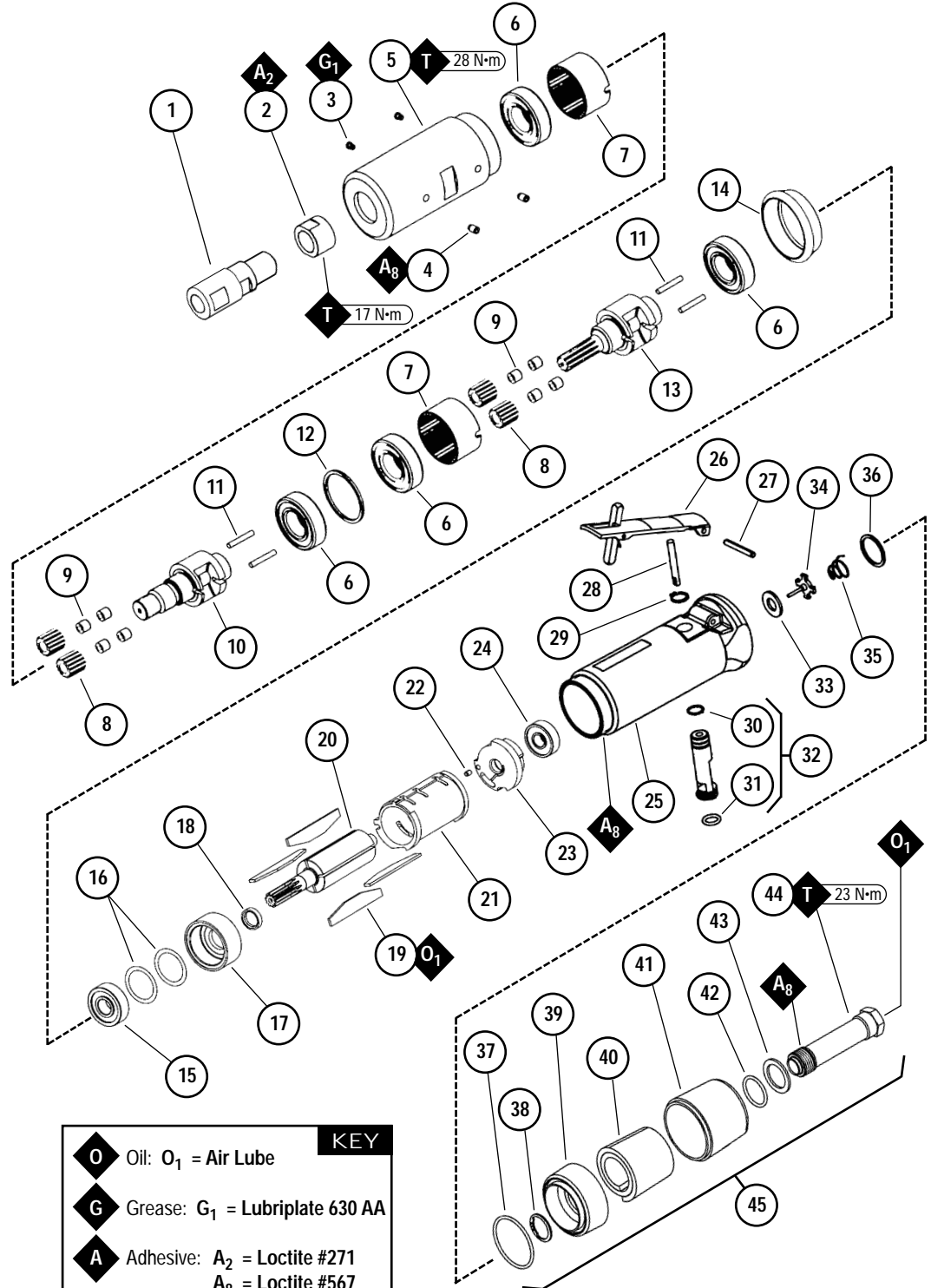
52103 — 950 RPM, 6 mm

### ! 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.

### Index Key

No.	Part #	Description
1	50066	1/4" Collet Assy.
	50073	6 mm Collet Assy.
2	04032	Spindle Nut
3	01041	Grease Fitting (2)
4	04014	Lock Screw (2)
5	53187	Planetary Housing
6	02552	Bearing (4)
7	53191	Ring Gear (2)
8	53195	Gear (4)
9	04026	Bearing (8)
10	53165	Planetary Carrier
11	53182	Gear Shaft (4)
12	53188	Spacer
13	53164	Planetary Carrier
14	53175	Rubber Collar
15	01007	Bearing
16	01121	Shim (3/pkg.)
17	53183	Front Bearing Plate
18	01010	Motor Spacer
19	01185	Blades (4/pkg.)
20	04009	Rotor
21	01028	Cylinder
22	50767	Pin
23	01721	Rear End Plate
24	02649	Bearing
25	30457	Housing - 52100
	30458	Housing - 52103
26	01089	Safety Throttle Lever
27	01017	Pin
28	01477	Valve Stem
29	95558	Retaining Ring
30	95730	O-Ring
31	01024	O-Ring
32	01247	Speed Reg. Assy.
33	01464	Seal
34	01472	Tip Valve
35	01468	Spring
36	01564	Air Control Ring
37	95438	O-Ring
38	95711	Retaining Ring
39	94521	Muffler Base
40	94528	Felt Muffler
41	94522	Muffler Cap
42	95375	O-Ring
43	94526	Spacer
44	94523	Inlet Adapter
45	94519	Muffler Assembly



KEY	
<b>O</b>	Oil: O <sub>1</sub> = Air Lube
<b>G</b>	Grease: G <sub>1</sub> = Lubriplate 630 AA
<b>A</b>	Adhesive: A <sub>2</sub> = Loctite #271 A <sub>8</sub> = Loctite #567
<b>T</b>	Torque: N•m x 8.85 = In. - lbs.

See inside for Important Operating, Maintenance and Safety Instructions.

## 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 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**: 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. Lubricate Planetary Gears through the gear casing fitting with **2-3 plunges for every 50 hours of use, to achieve maximum gear life (order 95542 Grease and 95541 Gun)**.
6. Use only genuine Dynabrade replacement parts. To reorder replacement parts, please specify the **Model #, Serial # and RPM** of your machine.
7. A Motor Tune-Up Kit (P/N **96260**) is available which includes assorted parts to help maintain motor in peak operating condition.
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, ketones 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	Motor HP (W)	Motor RPM	Sound Level	Maximum Air Flow CFM/SCFM (LPM)	Air Pressure PSIG (Bars)	Spindle Thread	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
All Models	.7 (522)	950	84 dB(A)	5/34 (957)	90 (6.2)	1/2"-20 male	3.6 (1.6)	12-1/2 (318)	1-7/8 (48)

Additional Specifications: Air Inlet Thread 1/4" NPT • Hose Size 3/8" (10 mm)

## Disassembly/Assembly Instructions - Die Grinder

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

Please refer to parts breakdown for part identification.

### Motor Disassembly:

1. Disconnect tool from power source. Remove collet assembly.
2. Secure air tool in padded vise. Pull back **53175** Rubber Collar.
3. With an adjustable pin wrench, remove **53187** Planetary Housing by turning counter-clockwise.
4. Remove both **04014** Set Screws and pull both planetary gear assemblies from **53187** Planetary Housing.
5. Press both planetary carrier assemblies from rear **02552** Bearings. (Remove ring gear shafts and gears from **53164** and **53165** Planetary Carriers.)
6. Secure **53165** Planetary Carrier in vise and remove **04032** Spindle Nut.
7. Press carriers from front **02552** Bearings.
8. Grab onto pinion and pull motor assembly from motor housing.
9. Press **04009** Rotor from **01721** Rear Bearing Plate. Press **02649** Rear Bearing from rear bearing plate.
10. Remove cylinder and rotor blades from rotor.
11. Press **04009** Rotor through **01007** Front Bearing and **53183** Front Bearing Plate.
12. Remove **01007** Bearing and shims from **53183** Bearing Plate. Remove **01010** Spacer from rotor.

Motor Disassembly Complete.

### Valve Body Disassembly:

1. Position valve body in padded vise 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 **94528** Felt Muffler.
5. Remove **01564** Air Control Ring from valve body. Using needle nose pliers, remove **01468** Spring, **01472** Tip Valve and **01464** Seal.
6. Using a 2.5 mm drift pin, tap **01017** Pin from housing and remove throttle lever.
7. Remove **95558** Retaining Ring. Push **01247** Regulator from valve body and remove o-rings.

Disassembly Complete.

### Motor Reassembly:

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

1. Slip **01010** Spacer onto **04009** Rotor.
2. Place a .002 shim into **53183** Bearing Plate (**Note:** **01121** Shim Pack contains .001 and .002 shims) and slip **01007** Bearing into plate.
3. Press **01007**, **53183** Bearing/Bearing Plate onto **04009** Rotor.
4. Check the clearance between rotor and bearing plate by using .001 feeler gage, clearance should be at .001 to .0015. Adjust clearance by repeating steps 2-4 with a different shim if necessary.
5. Once proper rotor/plate clearance is achieved, install well-lubricated **01185** Blades into **04009** Rotor. Dynabrade Air Lube P/N **95842** is recommended for lubrication.
6. Install **01028** Cylinder so it rests against **53183** Bearing Plate. (Make sure that the air inlet opening faces away from the **53183** Bearing Plate).
7. Press **02649** Bearing into **01721** Rear Bearing Plate. Press these parts onto **04009** Rotor, be sure that the line-up pin and the air inlet opening line up with pin slots and air passage. **Important:** Fit must be snug between bearing plates and cylinder. If too tight, rotor will not turn free. Release, press and repress assembly so that it turns free, while still maintaining a snug fit. A loose fit will not achieve the proper preload of the motor bearing.
8. Install motor assembly into motor housing, making sure that the bearing plate node fits into the notch inside the housing.
9. Press front **02552** Bearings onto front ends of both **53164** and **53165** Planetary Carriers.
10. Apply one drop of #271 Loctite® to threads of **04032** Nut and install nut onto **53165** Planetary Carrier (torque 17.0 N·m/150 in. - lbs.).
11. Install gears with needle bearings and **53182** Gear Shafts onto planetary carriers.
12. Slip **53191** Ring Gears over planetary gears making sure that the notches will line up with the set screws and the grease fittings. Then press rear **02552** Bearings onto planetary carriers.
13. Slide first planetary gear assembly into **53187** Planetary Housing and apply install **53188** Spacer, followed by the second planetary gear Assembly. A small amount of #567 Loctite® to the threads of **04014** Set Screws and install.
14. Install **53175** Rubber Collar onto **53187** Planetary Housing. Apply a small amount of #567 Loctite® to the threads of the motor housing and install **53187** Planetary Housing onto housing to secure motor (torque 28 N·m/250 in. - lbs.).

Motor Assembly Complete.

### Valve Body Assembly:

1. Insert **01247** Regulator with o-rings and valve stem in place into valve body. Secure with **95558** Retaining Ring.
2. Secure valve body in padded vise 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).

(continued on next page)

## Disassembly/Assembly Instructions (continued)

4. Place felt muffler into **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.
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 Loctite #567 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 **01017** Pin.

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

**Important:** 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. 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



### 95542 Grease 10 oz.

- Multi-purpose grease for all types of bearings, cams, gears.
- High film strength; excellent resistance to water, steam, etc.
- Workable range 0° F to 300° F.

### 95541 Push-type Grease Gun

- One-hand operation.



### 96260 Motor Tune-Up Kit

- Includes assorted parts to help maintain and repair motor.



### Dynaswivel®

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

**Note:** For proper connection to a 1/4" NPT a threaded reducing bushing is required.

- **95461:** 3/8" NPT.



### 53033 – 3/8" Drill Chuck

Includes: **53053** Mated Chuck Key.



### 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. (3.8 L)



### Collet Inserts

- **50013** – 1/4"
- **50014** – 3/8"
- **50016** – 6 mm
- **50039** – 8 mm
- **50065** – 1/8"



**50066** 1/4" Collet Assembly.

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