

For Serial No. 9J1264 and Higher

Models:

- 51211** — 3,200 RPM, 1/4" Collet
- 51212** — 5,000 RPM, 1/4" Collet
- 51214** — 3,200 RPM, 6 mm Collet
- 51215** — 5,000 RPM, 6 mm Collet

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.

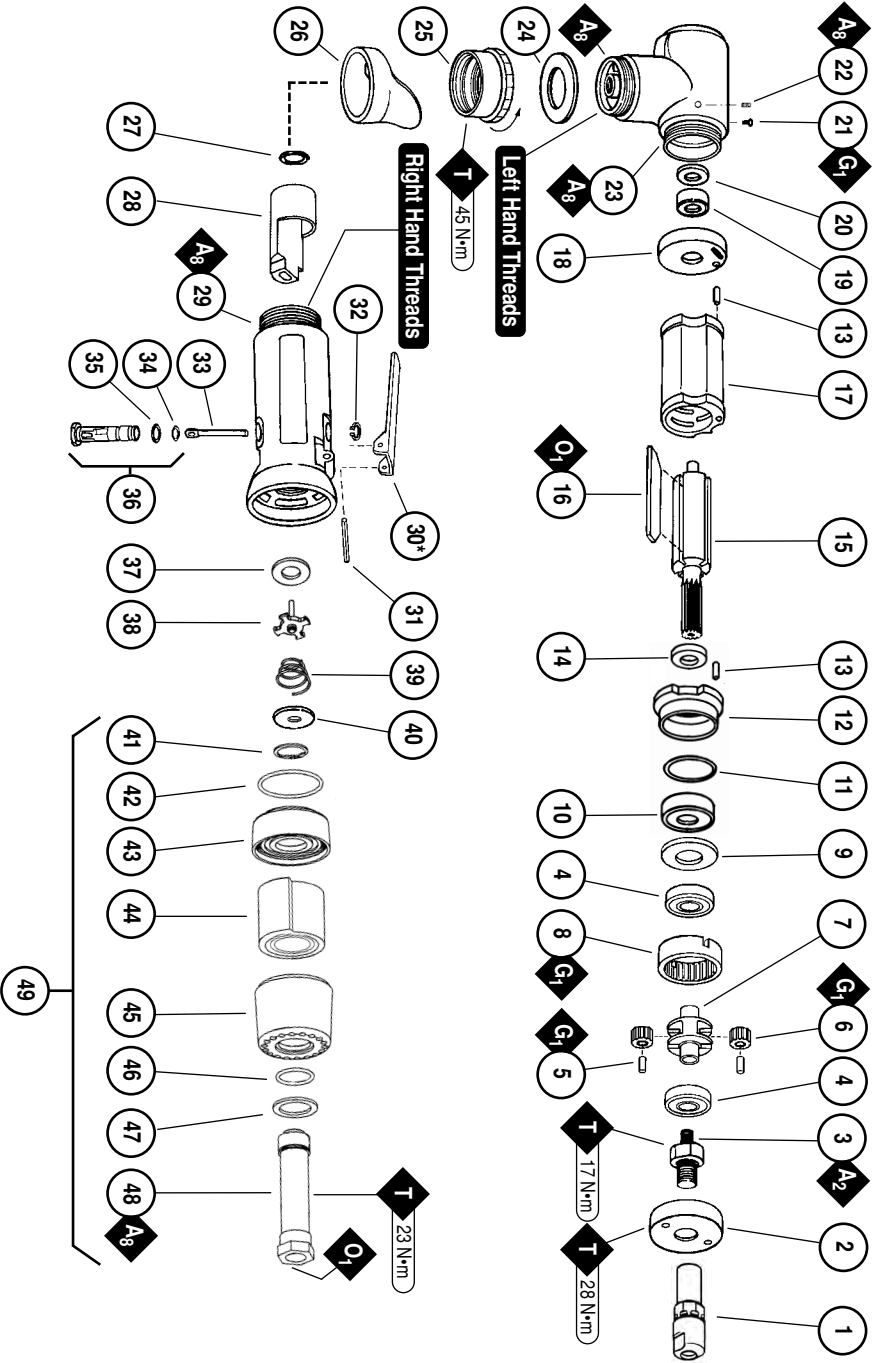
Symbol	Key
O	Oil: O ₁ = Air Lubr
A	Adhesive: A ₂ = Loctite #271 A ₈ = Loctite #567
T	Torque: N·m x 8.85 = In. - lbs.
G	Grease: G ₁ = Lubriplate 630 AA

Parts Page Reorder No. PD02•60
Effective December, 2002
Supersedes PD96•44

4 Hp/Planetary Gear/7°/Rear Exhaust Die Grinder

Air Motor and Machine Parts

No. Part #	Description
1	50010 Collet Assy - 1/4"
2	50015 Collet Assy - 6 mm
3	50781 Rear Exhaust Cover
4	50782 Adapter
5	54552 Bearing (2)
6	54472 Gear Shaft (2)
7	54519 3,200 RPM Gear (2)
8	06213 5,000 RPM Gear (2)
9	Planetary Carrier
10	50786 3,200 RPM
11	50787 5,000 RPM
12	54468 Ring Gear
13	50778 Spacer
14	02649 Bearing
15	54529 Shim (3/pkg.)
16	01478 Front Plate
17	50767 Pin (2)
18	01479 Spacer
19	54554 3,200 RPM Rotor
20	54553 5,000 RPM Rotor
21	01480 Blade (4/pkg.)
22	01476 Cylinder
23	02673 Rear Bearing Plate
24	02696 Bearing
25	02679 Shield
26	01041 Grease Fitting
27	50784 Set Screw
28	50776 Motor Housing
29	01548 Gasket
25	01461 Lock Nut
26	01558 Collar
27	95523 O-Ring
28	01470 Insert
29	02111 Housing - 51211
30	02112 Housing - 51212
31	02113 Housing - 51214
32	02114 Housing - 51215
30	01448 Throttle Lever
31	12132 Pin
32	95558 Retaining Ring
33	01449 Valve Stem
34	95730 O-Ring
35	01024 O-Ring
36	01469 Speed Regulator Assy.
37	01464 Seal
38	01472 Tip Valve
39	01468 Spring
40	01564 Air Control Ring
41	95711 Retaining Ring
42	95438 O-Ring
43	94521 Muffler Base
44	94528 Felt Muffler
45	94522 Muffler Cap
46	95375 O-Ring
47	94526 Spacer
48	94523 Inlet Adapter
49	94519 Muffler Assembly



*Optional 01462 Safety Lock Lever Available.

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.
5. Air tools are not intended for use in explosive atmospheres and are not insulated for contact with electrical power sources. Sanding/Grinding certain materials can create explosive dust. It is the employers responsibility to notify the user of acceptable dust levels. Sanding/Grinding can cause sparks which can cause fires or explosions. It is the users responsibility to make sure the work area is free of flammable materials.

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 specifications 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: **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 grease fitting with 2 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, specify the **Model #**, **Serial #** and **RPM** of your machine.
7. 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.
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.
9. DO NOT clean or maintain air tool with chemicals that have a low flash point (example: WD-40®).

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	Air Flow Rate CFM/SCFM (LPM)	Air Pressure PSIG (Bars)	Spindle Thread	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
51211/51214	.4 (298)	3,200	79 dB(A)	3/24 (680)	90 (6.2)	3/8"-24 male	1.8 (.8)	8 (203)	5-1/2 (140)
51212/51215	.4 (298)	5,000	79 dB(A)	3/24 (680)	90 (6.2)	3/8"-24 male	1.8 (.8)	8 (203)	5-1/2 (140)

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

Disassembly/Assembly Instructions - .4 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 the disassembly and assembly of these die grinders. All of the special repair tools referred to in these instructions can be ordered from Dynabrade.

Planetary Gear Disassembly:

1. Disconnect the tool from the air supply.
2. Remove the collet assembly.
3. Position the 52296 Repair Collar around the valve housing and secure the tool in a vise so that the 50782 Adapter is pointing up.
4. Use the 50971 Lock Ring Wrench to remove the 50781 Rear Exhaust Cover by turning it counterclockwise.
5. Use the 96401 Hex Key (2 mm) to remove the 50784 Set Screw.
6. Pull the 50782 Adapter along with the planetary gear assembly out of the 50776 Motor Housing.
7. Fasten the 96346 Bearing Separator (2") between the 54468 Ring Gear and the rear 54552 Bearing.
8. Place the planetary gear assembly and the separator on the table of the 96232 Arbor Press (#2) so that the 50782 Adapter is pointing down.
9. Carefully place the 96213 Bearing Removal Tool against the 50786 or 50787 Planetary Carrier removing it from the rear 54552 Bearing.
10. Remove the ring gear, shafts and gears from the planetary carrier.
11. Secure the planetary carrier in a vise with aluminum or bronze jaws so that the 50782 Adapter is pointing up. Use an adjustable wrench to remove the adapter from the planetary carrier.

Planetary Gear Disassembly Complete.

Motor Disassembly:

1. Pull the motor assembly from the motor housing.
2. Remove the 50778 Spacer from the motor.
3. Fasten the 96346 Bearing Separator (2") around the rear portion of the 01476 Cylinder closest to the rear bearing plate.
4. Place the separator and the motor assembly on the table of the 96232 Arbor Press so that the pinion gear of the rotor is pointing down. Use a 3/16" dia. flat end drive punch as a press tool. Place it against the rear bearing journal of the rotor and push the rotor from the 02696 Bearing.
5. Remove the 02679 Shield from the 02696 Bearing.
6. Use the 96210 Bearing Removal Tool to remove the 02696 Bearing from the 02673 Rear Bearing Plate.
7. Remove the 01480 Blades from the rotor.
8. Press the 02649 Bearing from the rotor, removing the 01478 Front Bearing Plate and the 54529 Shims.
9. Remove the 01479 Spacer from the rotor.

Motor Disassembly Complete.

Valve Disassembly:

1. Place the 52296 Repair Collar around the valve housing and secure it in a vise so that the air inlet is pointing up.
2. Use two wrenches when removing the air fitting. Place one wrench on the 94523 Inlet Adapter to hold it stationary and use another wrench to remove the air fitting.
3. Remove the inlet adapter from the valve housing. **Note:** Refer to the exploded view of the muffler assembly to identify the parts and their order of disassembly.
4. Use a needle nose pliers to remove the 01468 Spring and 01472 Tip Valve. The 01464 Seal can be removed from the valve housing with a small screwdriver.
5. Use retaining ring pliers to remove the 95558 Retaining Ring and push the 01469 Speed Regulator Assembly along with the 01449 Speed Regulator Assembly along with the 01449 Valve Stem out of the valve housing.
6. Use a 2.5 mm drive punch to remove the 12132 Pin and throttle lever.

Valve Disassembly Complete.

Valve Assembly:

1. Place the 52296 Repair Collar around the valve housing and secure it in a vise so that the air inlet is pointing up.
2. Install the 01469 Speed Regulator Assembly (includes o-rings) into the valve housing and secure it in place with the 95558 Retaining Ring.
3. Insert the 01449 Valve Stem so that the end with the holes fit into the 01469 Speed Regulator Assembly.
4. Install the 01464 Seal into the air inlet so that it is laying flat.
5. Use a needle nose pliers to grasp the white nylon portion of the 01472 Tip Valve and insert the metal pin of the tip valve into the hole in the 01449 Valve Stem.
6. Install the 01468 Spring so that the smaller end of the spring fits against the center of the tip valve.
7. **Note:** Refer to the exploded view of the muffler assembly to identify the parts and their order of assembly. Apply a small amount of Loctite #567 (or equivalent) to the threads of the inlet adapter and install it into the air inlet of the valve housing. (Torque to 23 N•m/200 in.- lbs.)
8. Install the throttle lever and secure it in place with the 12132 Pin.
9. Use two wrenches when installing the air fitting. Place one wrench on the 94523 Inlet Adapter to hold it stationary and use another wrench to install the air fitting.

Valve Disassembly Complete.

Motor Assembly:

1. Install the 01479 Spacer onto the rotor.
2. Select .003 (.08 mm) thick shims from the 54529 Shim Pack and place these into the 01478 Front Bearing Plate.
3. Install the 02649 Bearing into the front bearing plate.
4. Use the 96240 Bearing Press Tool (position the raised inside diameter against the inside diameter of the bearing) and the 96232 Arbor Press to install these parts onto the pinion end of the rotor.
5. Check the rotor/plate clearance with a .001 (0.03 mm) feeler gage. The clearance should be .001-.0015 (0.03-0.04 mm). If the rotor/plate clearance needs adjustment, repeat steps 3-5 and shim as required.
6. Apply the 95842 Dynabrade Air Lube (10W/NR or equivalent) to the 01480 Blades (4) and install these into the slots in the rotor.
7. Install the 01476 Cylinder over the rotor so that the air inlet opening of the cylinder will align with the air inlet opening of the 02673 Rear Bearing Plate.
8. Use the 96216 Bearing Press Tool (position the raised outside diameter against the outside diameter of the bearing) and 96232 Arbor Press to install the 02696 Bearing into the rear bearing plate.
9. Use the 96216 Bearing Press Tool (position the raised inside diameter against the inside diameter of the bearing) and 96232 Arbor Press to install these parts onto the rear bearing journal of the rotor. **Note:** Press the rear bearing/plate assembly down onto the rotor only until the 02673 Rear Bearing Plate comes in contact with the 01476 Cylinder. This fit will establish a preload on the motor bearings producing a "snug fit" between the bearings and the cylinder. If the fit is too tight it will cause the bearings to wear prematurely, too loosen and the desired preload will not be achieved. If an adjustment is required disassemble and repeat steps 7-9.
10. Apply a small amount of the 95542 Grease (or equivalent) to the seal of the 02696 Bearing and install the 02679 Shield against the bearing.

Disassembly/Assembly Instructions - (continued)

11. Install the motor assembly into the **50776** Motor Housing.

Motor Assembly Complete.

Planetary Gear Assembly:

1. Use the **96239** Bearing Press Tool (position the raised inside diameter against the inside diameter of the bearing) and the **96232** Arbor Press to install the front **54552** Bearing onto the female threaded end of the **50786** or **50787** Planetary Carrier.
2. Apply a small amount of the Loctite #271 (or equivalent) to the threads of the **50782** Adapter and install the adapter onto the planetary carrier. (Torque to 17 N•m/150 in.- lbs.)
3. Apply the **95542** Grease to the shafts, bearings and gears of the planetary carrier. Install these parts into the carrier.
4. Orient the **54468** Ring Gear on the planetary carrier so that the set screw and grease fitting notches will align properly with the openings in the **50776** Motor Housing once it's installed.
5. Use the **96239** Bearing Press Tool (position the raised inside diameter against the inside diameter of the bearing) and the **96232** Arbor press to install the rear **54552** Bearing onto the rear bearing journal of the **50786** or **50787** Planetary Carrier. **Note:** Press the rear bearing down onto the carrier only until the **54552** Bearing comes in contact with the **54468** Ring Gear. this fit will establish a preload on the bearings producing a "snug fit" between the bearings and the ring gear. If the fit is too tight it will cause the bearings to wear prematurely, if the fit is too loose the desired preload will not be achieved. If an adjustment is required disassemble and repeat this step.
6. Install the **50778** Spacer with the flat side of the spacer against the **02649** Bearing of the motor assembly.
7. Slide the planetary gear assembly into the **50776** Motor Housing so that the set screw and grease fitting notches align with the corresponding openings in the motor housing.
8. Apply a small amount of the Loctite #567 (or equivalent) to the **50784** Set Screw and install it into the motor housing.
9. Apply a small amount of the Loctite #567 (or equivalent) to the threads of the motor housing and install the **50781** Rear Exhaust Cover. (Torque to 28 N•m/250 in.- lbs.)
10. Lubricate the planetary gear assembly with the **95542** Grease through the grease fitting. Use the **95541** Grease Gun to initially apply 2-3 plunges of grease and there after 2-3 plunges for every 50 hours of use.
11. Install the collet assembly.

Planetary Gear Assembly Complete. Tool Assembly Complete. Allow 30 minutes for the adhesives to cure before operating the sander.

Throttle Lever Positioning Procedure:

1. Place the **52296** Repair Collar around the valve housing and secure it in a vise so that the **50776** Housing is pointing up.
2. Slip the **01558** Collar down onto the valve housing to expose the **01461** Lock Nut.
3. With a firm hold on the **50776** Housing, use a 34 mm or an adjustable wrench to turn the **01461** Lock Nut counter clockwise to loosen the **50776** Housing from the valve housing.
4. Orient the throttle lever to the operators desired grip and positioning. **Note:** Allow for additional rotation of the **50776** Housing as the **01461** Lock Nut is tightened.
5. With a firm hold on the **50776** Housing to reduce its rotation, use a 34 mm or an adjustable wrench to tighten the **01461** Lock Nut. (Torque to 45 N•m/400 in.- lbs.)

Important: Carefully perform this procedure so as not to entirely separate the **50776** Housing from the valve housing. Loosen the **01461** Lock Nut only enough to make the desired throttle lever adjustment.

Optional Accessories



Dynaswivel®

- Patented "universal-joint" connects portable air tools to an air line.
- Swivels 360° AT TWO PIVOT POINTS allowing the air hose to drop directly to the floor while providing superb tool handling.
- Lightweight, non-marring composite construction; industrial quality. **94300** – 1/4" NPT.



96174 Motor Tune-Up Kit

- Includes assorted parts to help maintain and repair motor.

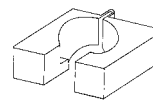


95542 Grease 10 oz.

- 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.

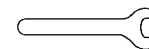
95541 Push-type Grease Gun

- One-hand operation.



52296 Repair Collar

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



Open-End Wrench

- 95262** – 14 mm open-end.
- 95281** – 19 mm open-end.



50971 Lock Ring Wrench

- Lock Ring Tool has a 3/8 in. square socket for use with 3/8 in. drive; breaker bar, ratchet head, or torque wrenches.

Visit Our Web Site: www.dynabrade.com

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