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

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.
- G — Grease: G_1 = Lubriplate 630 AA

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

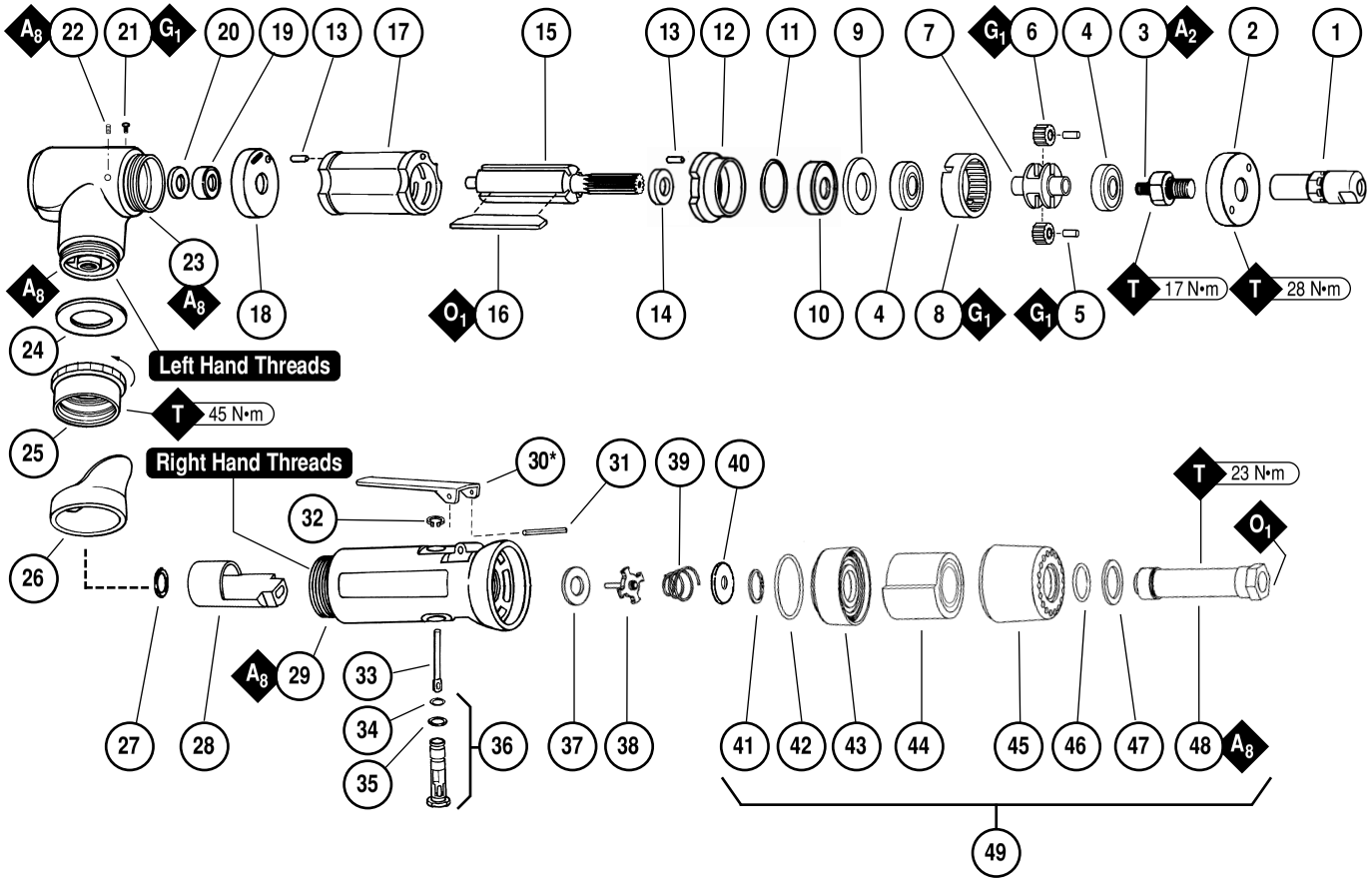
.4 Hp/Planetary Gear/7°/Rear Exhaust Die Grinder

Air Motor and Machine Parts

⚠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.

Index Key

No.	Part #	Description
1	**50010**	Collet Assy. – 1/4"
	50015	Collet Assy. – 6 mm
2	**50781**	Rear Exhaust Cover
3	**50782**	Adapter
4	**54552**	Bearing (2)
5	**54472**	Gear Shaft (2)
6	**54519**	3,200 RPM Gear (2)
	06213	5,000 RPM Gear (2)
7		Planetary Carrier
	50786	3,200 RPM
	50787	5,000 RPM
8	**54468**	Ring Gear
9	**50778**	Spacer
10	**02649**	Bearing
11	**54529**	Shim (3/pkg.)
12	**01478**	Front Plate
13	**50767**	Pin (2)
14	**01479**	Spacer
15	**54554**	3,200 RPM Rotor
	54553	5,000 RPM Rotor
16	**01480**	Blade (4/pkg.)
17	**01476**	Cylinder
18	**02673**	Rear Bearing Plate
19	**02696**	Bearing
20	**02679**	Shield
21	**01041**	Grease Fitting
22	**50784**	Set Screw
23	**50776**	Motor Housing
24	**01548**	Gasket
25	**01461**	Lock Nut
26	**01558**	Collar
27	**95523**	O-Ring
28	**01470**	Insert
29	**02111**	Housing - **51211**
	02112	Housing - **51212**
	02113	Housing - **51214**
	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.

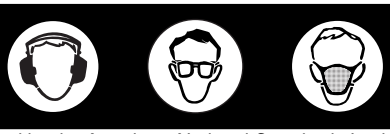
1. With power source disconnected from tool, securely fasten abrasive/accessory on tool.
2. Install air fitting into inlet bushing of tool. **Important:** Secure inlet bushing of tool with a wrench before attempting to install the air fitting to avoid damaging valve body housing.
3. Connect power source 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 peek 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.



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.



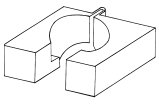
50971 Lock Ring Wrench

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



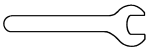
96174 Motor Tune-Up Kit

- 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 housing during disassembly/assembly.



Open-End Wrench

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

Visit Our Web Site: www.dynabrade.com **Email:** Customer.Service@Dynabrade.com

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