

**Models:**

- 52204 — 25,000 RPM, 1/4" Collet**
- 52206 — 30,000 RPM, 1/4" Collet**
- 52250 — 25,000 RPM, 6mm Collet**
- 52252 — 30,000 RPM, 6mm Collet**

# .4 Hp/7°/Front Exhaust Die Grinder

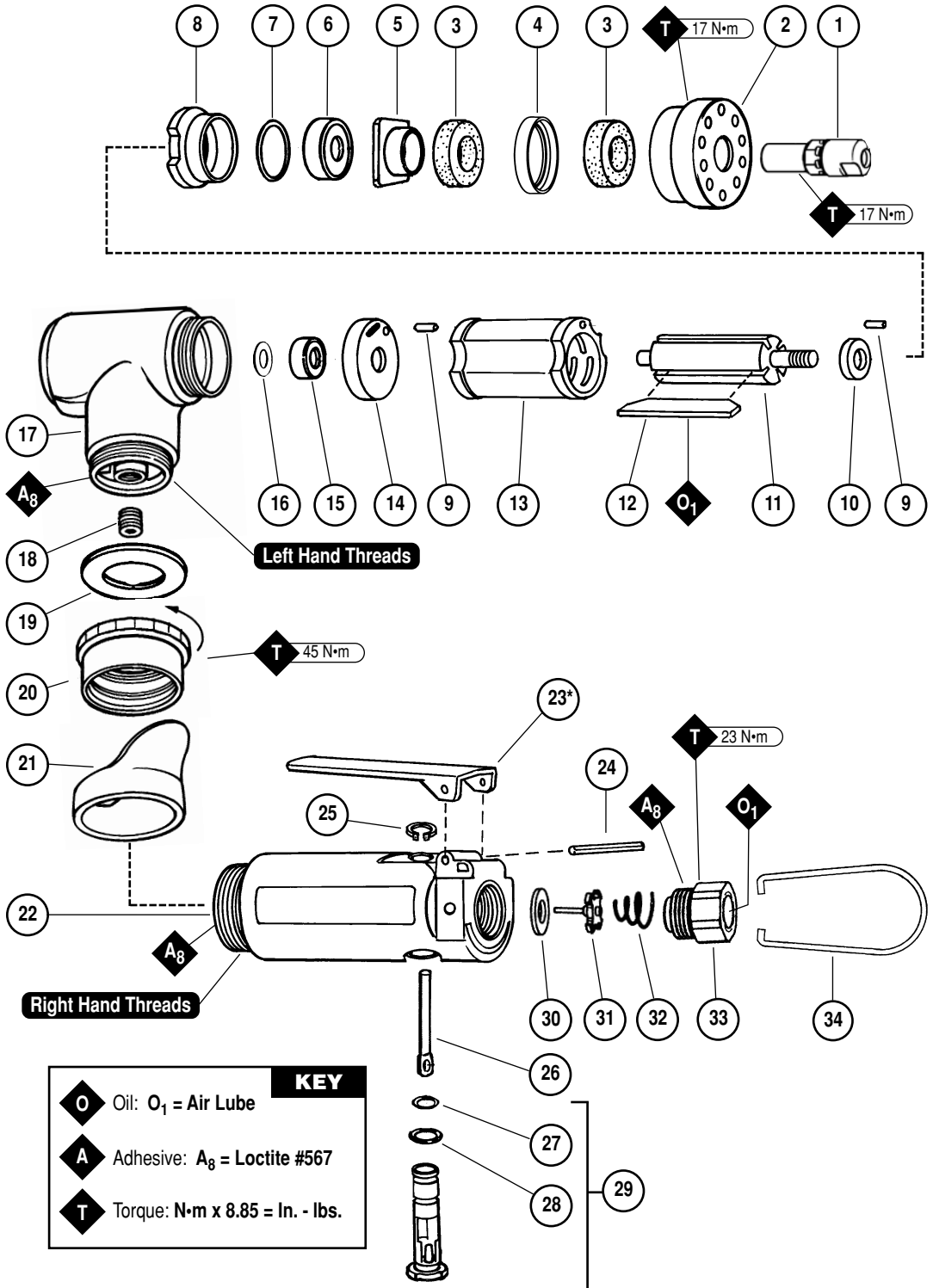
*Air Motor and Machine Parts*

## ! 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.

| Index Key |                           |
|-----------|---------------------------|
| No.       | Part # Description        |
| 1         | <b>Collet Assembly</b>    |
|           | 50080 1/4" Insert         |
|           | 50079 6mm Insert          |
| 2         | 01559 Exhaust Cover       |
| 3         | 01486 Muffler Insert      |
|           | 25,000 RPM (Qty. 4)       |
|           | 30,000 RPM (Qty. 2)       |
| 4         | 01482 Baffle              |
| 5         | <b>Air Control Ring</b>   |
|           | 01471 25,000 RPM          |
|           | 01481 30,000 RPM          |
| 6         | 02649 Bearing             |
| 7         | 54529 Shim Pack (3/pkg.)  |
| 8         | 01478 Front Bearing Plate |
| 9         | 50767 Pin (2)             |
| 10        | 01479 Spacer              |
| 11        | 01475 Rotor               |
| 12        | 01480 Blades (4/pkg.)     |
| 13        | 01476 Cylinder            |
| 14        | 02673 Rear Bearing Plate  |
| 15        | 02696 Bearing             |
| 16        | 02679 Shield              |
| 17        | 01546 Housing             |
| 18        | 01437 Plug                |
| 19        | 01548 Gasket              |
| 20        | 01461 Lock Nut            |
| 21        | 01558 Collar              |
| 22        | 01463 Housing             |
| 23        | 01448 Throttle Lever      |
| 24        | 12132 Pin                 |
| 25        | 95558 Retaining Ring      |
| 26        | 01449 Valve Stem          |
| 27        | 95730 O-Ring              |
| 28        | 01024 O-Ring              |
| 29        | 01469 Speed Reg. Assy.    |
| 30        | 01464 Seal                |
| 31        | 01472 Tip Valve           |
| 32        | 01468 Spring              |
| 33        | 01494 Inlet Adapter       |
| 34        | 50033 Hanger              |

Please indicate:  
**Model #, Serial #, and RPM** when ordering replacement parts.



\*Optional 01462 Safety-Lock Lever available.

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.
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 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 10 SCFM (example: if the tool specification states 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. It is strongly recommended that all Dynabrade rotary vane air tools be used with a Filter-Regulator-Lubricator to minimize the possibility of misuse due to unclean air, wet air or insufficient lubrication. 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. Use only genuine Dynabrade replacement parts. To reorder replacement parts, please specify the **Model #**, **Serial #** and **RPM** of your machine.
6. A Motor Tune-Up Kit (P/N 96048) is available which includes assorted parts to help maintain motor in peak operating condition.
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.
8. DO NOT clean or maintain air tools 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 | Air Inlet Thread | Sound Level | Air Flow Rate CFM/SCFM (LPM) | Air Pressure PSIG (Bars) | Spindle Thread | Weight Pound (kg) | Length Inch (mm) | Height Inch (mm) |
|--------------|--------------|-----------|------------------|-------------|------------------------------|--------------------------|----------------|-------------------|------------------|------------------|
| 52204        | .4 (298)     | 25,000    | 1/4" NPT         | 76 dB(A)    | 3/18 (510)                   | 90 (6.2)                 | M8 x 1.0 male  | 1 (.5)            | 6 (152)          | 3-11/16 (94)     |
| 52206        | .4 (298)     | 30,000    | 1/4" NPT         | 79 dB(A)    | 3/21 (595)                   | 90 (6.2)                 | M8 x 1.0 male  | 1 (.5)            | 6 (152)          | 3-11/16 (94)     |
| 52250        | .4 (298)     | 25,000    | 1/4" NPT         | 76 dB(A)    | 3/18 (510)                   | 90 (6.2)                 | M8 x 1.0 male  | 1 (.5)            | 6 (152)          | 3-11/16 (94)     |
| 52252        | .4 (298)     | 30,000    | 1/4" NPT         | 79 dB(A)    | 3/21 (595)                   | 90 (6.2)                 | M8 x 1.0 male  | 1 (.5)            | 6 (152)          | 3-11/16 (94)     |

Additional Specifications: Hose I.D. Size 1/4" or 8mm

# **Disassembly/Assembly Instructions - .4 Hp/7°/Front 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. When installing and removing air fittings, use a wrench on the inlet adapter and a wrench on the air fitting to avoid loosening the inlet adapter from the housing or the housing from the lock nut.

## **To Disassemble:**

1. Secure air tool in vise using 52296 Repair Collar or padded jaws.
2. Remove collet cap and insert.
3. With an adjustable pin wrench or 50971 Lock Ring Tool, remove 01559 Exhaust Cover by turning counter-clockwise. Remove air control ring, muffler insert and 01482 Baffle.
4. Pull motor assembly from housing.
5. Reposition motor housing in vise so inlet bushing is facing upward.
6. Unscrew 01494 Inlet Bushing turning counter-clockwise.
7. Using needle nose pliers, remove 01468 Spring, 01472 Tip Valve and 01464 Seal.
8. Resecure housing in vise so throttle lever and 12132 Pin are accessible.
9. Using a 2.5mm diameter drift pin and a hammer, tap 12132 Pin out from housing and remove throttle lever.
10. Remove 95558 Retaining Ring and push 01469 Speed Regulator from housing.

**Optional:** To disassemble valve body from motor housing, peel back collar to expose lock nut. Unscrew lock nut/valve body from housing (left hand threads).  
**Tool Disassembly Complete.**

## **Motor Disassembly:**

1. Press rotor from 02696 Rear Bearing. Press 02696 Bearing from 02673 Rear Bearing Plate.
2. Remove 01435 Collet Body from rotor shaft. Twist collet body counter clockwise from shaft.
3. Remove 01478 Front Bearing Plate, cylinder, blades (4) and 01479 Spacer from rotor. **Note:** 02649 Bearing is a slip fit into 01478 Front Bearing Plate.

**Motor Disassembly Complete.**

## **Motor Assembly:**

**Important:** Be sure parts are clean and in good repair before assembling.

1. Place 01475 Rotor in padded vise with threaded spindle facing upwards.
2. Slip 01479 Spacer onto rotor.
3. Place a .002" shim into 01478 Front Bearing Plate as an initial spacing (**Note:** 54529 Shim Pack contains .001", .002", and .003" shims) and slip 02649 Bearing into plate.
4. Install bearing/bearing plate assembly onto rotor.
5. Tighten 01435 Collet Body onto rotor (torque to 17 N•m/150 in. - lbs.).
6. 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 1-5 with different shim if necessary.
7. Once proper rotor/gap clearance is achieved, install well lubricated 01480 Blades (4) into rotor slots. Dynabrade Air Lube P/N 95842 is recommended for lubrication.
8. Install cylinder over rotor. Be sure air inlet holes of cylinder face away from bearing plate and that the pin in the front bearing plate aligns correctly with the pin-hole in the cylinder.
9. Press 02696 Rear Bearing into 02673 Rear Bearing Plate. Press bearing/bearing plate assembly onto rotor. Be sure that pin and air inlet holes line-up with pin slot and air inlet holes in cylinder. **Important:** Fit must be snug between bearing plates and cylinder. A loose fit will not achieve the proper pre-load of motor bearings. 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.
10. Secure housing in vise using 52296 Repair Collar.
11. Install motor assembly into housing. Be sure motor drops all the way into housing.
12. Assemble baffle, muffler insert and air control ring into 01559 Exhaust Cover and install onto motor housing. 50971 Lock Ring Tool can be used (torque 17 N•m/150 in. - lbs.).
13. Motor adjustment can now be checked. With motor housing still mounted in vise, pull end of rotor and twist (10-15 lbs. force), rotor should turn freely without drag. If drag or rub is felt, then increase pre-load or remove shim. Also, push end of rotor and twist (10-15 lbs. force), rotor should turn freely without drag. If drag or rub is felt, then de-load or add shim.

**Motor Assembly Complete.**

## **Valve Body Assembly:**

1. Insert 01469 Speed Regulator Assembly with 01449 Valve Stem with o-rings installed into housing. Secure with 95558 Retaining Ring.
2. Secure valve body in vise using 52296 Repair Collar with air inlet facing upward.
3. Insert 01464 Seal into housing.
4. Line-up the hole in the 01449 Valve Stem with the hole in the 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 first).
5. Apply Loctite #567 PST Pipe Sealant (or equivalent) to threads of 01494 Inlet Adapter and install muffler assembly onto valve body (torque 23.0 N•m/200 in. - lbs.).
5. Install throttle lever and 12132 Pin. Remove from vise.

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

## Disassembly/Assembly Instructions - Continued

**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.

**Notice:** To adjust throttle body orientation for a front exhaust tool:

1. Secure valve body in vise with **01546** Housing pointing up.
2. Peel down **01558** Collar to expose the nut portion of **01461** Lock Nut.
3. Using a 34mm crows foot and firmly holding motor housing, turn **01461** Lock Nut counter clockwise to loosen assembly.
4. Adjust orientation of throttle lever to agree with your grip and comfort level allowing for additional rotation due to torquing.
5. Using the 34mm crows foot and a torque wrench set to 400 lbs. in., (while firmly holding motor housing in place to reduce housing rotation) tighten **01461** Lock Nut.

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## Optional Accessories



### 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.



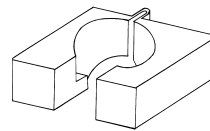
### 96048 Motor Tune-Up Kit

- Includes assorted parts to help maintain and repair motor.



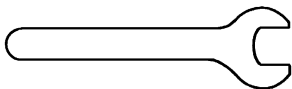
### Collet Inserts

- **01485** – 1/4"
- **01497** – 6mm
- **01495** – 1/8"
- **01496** – 3mm



### 52296 Repair Collar

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



### Open-End Wrenches

- 96076** – 12mm open-end.
- 95262** – 14mm open-end.



### 50971 Lock Ring Tool

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

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