Parts Page Reorder No. PD01•102
Effective December, 2001

.4 Hp/Right-Angle/Planetary Geared/Rear Exhaust
3" Buffer

Models:

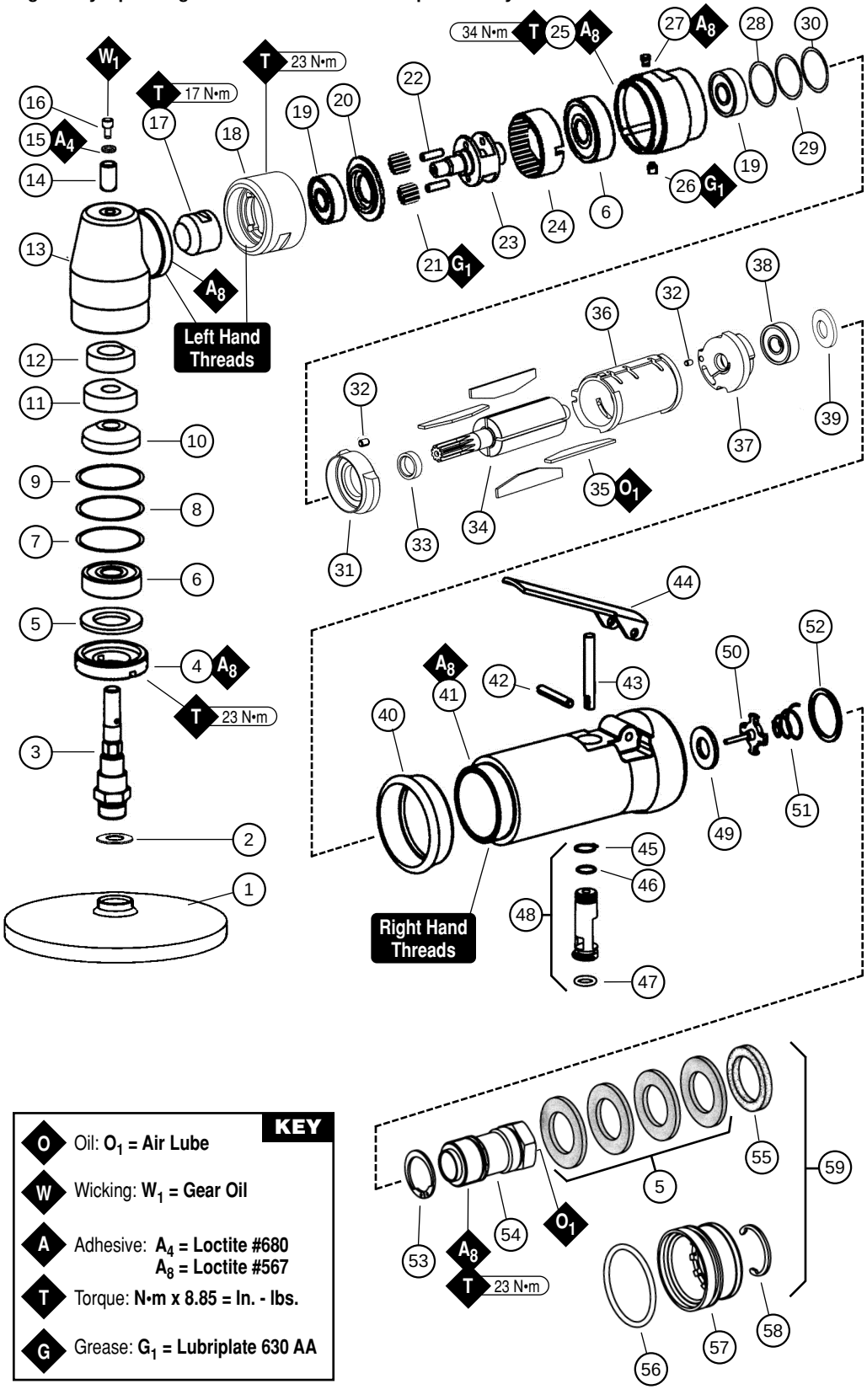
53460 – 3" Buffer – 3,200 RPM

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	**50126**	Pad
2	**95446**	Spacer
3	**02028**	3/8"-24 Spindle
4	**02035**	Lock Nut
5	**01486**	Felt Silencer (5)
6	**54520**	Bearing (2)
7	**97116**	Shim
8	**97117**	Shim
9	**97118**	Shim
10	**02599**	Gear - 20,000 RPM
11	**02044**	Wick - Bottom
12	**02045**	Wick - Top
13	**02031**	Housing (includes: gear oil fitting, plate and needle bearing)
14	**02033**	Needle Bearing
15	**02041**	Gear Oil Plate
16	**01041**	Gear Oil Fitting
17	**02600**	Pinion - 20,000 RPM
18	**50019**	Lock Nut
19	**02649**	Bearing (2)
20	**50022**	Spacer
21	**06213**	Gear (2)
22	**54472**	Gear Shaft (2)
23	**50023**	Planetary Carrier
24	**54468**	Ring Gear
25	**50024**	Gear Case
26	**01041**	Grease Fitting
27	**50784**	Set Screw
28	**54543**	Shim
29	**54544**	Shim
30	**54551**	Shim
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32	**50767**	Pin (2)
33	**01479**	Spacer
34	**54553**	Rotor
35	**01480**	Blades (4)
36	**01476**	Cylinder
37	**02676**	Bearing Plate
38	**02696**	Bearing
39	**02679**	Shield
40	**01547**	Collar
41	**53463**	Housing - **53460**
42	**12132**	Pin
43	**01449**	Valve Stem
44	**01448**	Throttle Lever
	01462	Safety Lock Lever
45	**95558**	Retaining Ring
46	**95730**	O-Ring
47	**01024**	O-Ring
48	**01469**	Speed Regulator Assy.
49	**01464**	Seal
50	**01472**	Tip Valve
51	**01468**	Spring
52	**01564**	Air Control Ring
53	**95711**	Retaining Ring
54	**01578**	Inlet Adapter
55	**01379**	Bronze Muffler
56	**96065**	O-Ring
57	**01446**	Air Deflector
58	**95620**	Retaining Ring
59	**94535**	Muffler Assembly



KEY

- **O** Oil: **O_1 = Air Lube**
- **W** Wicking: **W_1 = Gear Oil**
- **A** Adhesive: **A_4 = Loctite #680**, **A_8 = Loctite #567**
- **T** Torque: **N•m x 8.85 = In. - lbs.**
- **G** Grease: **G_1 = Lubriplate 630 AA**

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 specifications 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. 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 contaminant's and micro-mist lubrication of pneumatic components. Operates up to 40 SCFM @ 100 PSIG has 3/8" NPT female ports.
5. Lubricate wick system through the angle gear head gear oil fitting with **2-3 plunges for every 8 hours of use, to achieve maximum gear life. Important: Use only the recommended angle gear oil for the wick system. Do not contaminate the wick with any other oil or grease product (order 95848 Gear Oil and 95541 Gun)**.
6. Lubricate planetary gears through the gear casing grease fitting with **2-3 plunges for every 50 hours of use, to achieve maximum gear life (order 95542 Grease and 95541 Gun)**.
7. Use only genuine Dynabrade replacement parts. To reorder replacement parts, specify the **model #**, **Serial #**, and **RPM** of your machine.
8. A Motor Tune-Up Kit (P/N **96179**) 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.
9. 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.

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)
53460	.4 (298)	3,200	84 dB(A)	3/21 (595)	90 (6.2)	3/8-24 male	1.4 (.66)	7 (177)	3.5 (88)

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

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. Special repair tools are mentioned in these instructions. These can be ordered from Dynabrade® through your Dynabrade® Distributor.

Motor Disassembly:

1. Disconnect the tool from the air supply. **Important:** Hold the air inlet adapter securely with a wrench before removing any air fitting to prevent damage to the composite housing.
2. Secure the motor housing in a vise using **52296** Repair Collar or padded jaws to provide protection for the housing. Position the tool so that the angle-head is pointing up.
3. Use a 34mm or adjustable wrench to remove the **50024** Gear Case, turning it counter clockwise.
4. Pull motor assembly out of the motor housing.
5. Fasten a 2 in. bearing separator around the portion of the **01476** Cylinder nearest the **02676** Rear Bearing Plate.
6. Place the bearing separator on the table of the arbor press so that the sun gear end of the rotor is pointing toward the floor.

(continued on next page)

Disassembly/Assembly Instructions - (continued)

7. Use a 3/16 in. dia. drive punch as a press tool and position it on the rear rotor shaft. Press the rotor out of the **02696** Bearing. The **02696** Bearing can be removed from the **02676** Bearing plate with a **96210** Bearing Removal tool and arbor press.
8. Place the flat side of the **01478** Front Bearing Plate on an arbor press tool plate or bearing separator and press the sun gear end of the **54553** Rotor from the front bearing/plate assembly.
9. Push **02649** Bearing out of the front bearing plate and remove shims. Slip **01479** Spacer off rotor.

Motor Disassembly Complete.

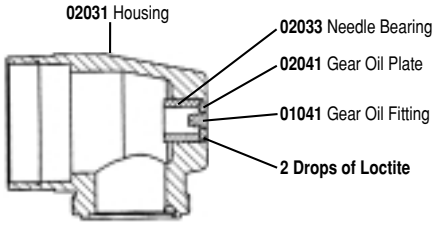
Valve Body Disassembly:

1. Use **52296** Repair Collar to securely hold the motor housing in a vise so that the inlet adapter is pointing up.
2. Remove the **94535** Muffler Assembly by loosening the **01578** Inlet Adapter. Also remove **01468** Spring, **01472** Tip Valve, and **01464** Seal. **Note:** Refer to the parts breakdown for parts identification and order of assembly of the **94535** Muffler.
3. Reposition the motor housing in the vise so that the throttle lever, and **12132** Pin are accessible. Remove the pin and lever by using a 2.5mm dia. drive punch.
4. Use retaining ring pliers to remove the **95558** Retaining Ring and push the **01469** Speed regulator Assembly out of the motor housing.

Valve Body Disassembly Complete.

Planetary Gear Disassembly:

1. Separate the **50024** Gear Case from the **50019** Lock Nut. (Use two 34mm or adjustable wrenches.)
2. Remove the **50784** Set Screw and pull the planetary gear assembly out of the gear case.
3. Fasten a bearing separator between the **54520** Bearing and the **54468** Ring Gear. Place the separator on the table of the arbor press so that the pinion gear is pointing toward the floor. Use a 3/8 in. dia. drive punch as a press tool to push the carrier from the **54520** Bearing.
4. Carefully hold the **50023** Planetary Carrier in a vise with aluminum or bronze jaws. **Note:** Do not crush the gears.
5. Use a 14mm wrench to remove the **02600** Pinion turning it counter clockwise.
6. Press the front **54520** Bearing from the planetary carrier.
7. Use a 3/32 in. dia. drive punch to remove the **54472** Shafts and **06213** Gears.



Planetary Gear Disassembly Complete.

Angle-Head Disassembly:

1. Secure the **02031** Housing in a vise using **52296** Repair Collar to provide protection for the housing. Position the housing so that the **02035** Lock Nut is facing up.
2. Use **50971** Lock Ring Tool to remove the **02035** Lock Nut, turning it counter-clockwise.
3. Grasp the **02028** Spindle and pull the spindle along with **54520** Bearing, **02599** Gear and shims out of the housing.
4. The bearing and gear can be pressed off the spindle with an arbor press.
5. If necessary the **02033** Needle Bearing can be removed by using a 5/16 in. dia. drive punch to push the **02041** Gear Oil Plate, and **01041** Gear Oil Fitting out of the **02031** Housing.

Angle-Head Disassembly Complete.

Valve Body Assembly:

1. Install **01469** Speed Regulator Assembly into the motor housing, and secure it in place with **95558** Retaining Ring.
2. Use **52296** Repair Collar to securely hold the motor housing in a vise so that the air inlet is pointing up.
3. Insert the **01449** Valve Stem into the speed regulator assembly so that the hole in the valve stem aligns with the air inlet hole in the motor housing.
4. Install **01464** Seal so that it lays flat. Use a needle nose pliers to grasp the nylon portion of the **01472** Tip Valve and install it so that the metal pin fits into the hole of the **01449** Valve Stem.
5. Install the **01468** Spring so that the smaller end fits over the back of the tip valve.
6. Install the **94535** Muffler Assembly by applying a small amount of Loctite® #567 or equivalent to the male threads of the **01578** Inlet Adapter and tighten. (Torque to 23 N•m/200 in. lbs.)

Valve Body Assembly Complete.

Motor Assembly:

Important: Clean and inspect parts for wear or damage before assembling**.**

1. Hold the body of the **54553** Rotor in a vise with aluminum or bronze jaws so that the sun gear is pointing up.
2. Slip **01479** Spacer onto **54553** Rotor.
3. Place a .002 thick shim into the **01478** Front Bearing Plate as an initial spacing and then install **02649** Bearing into the front bearing plate.
4. Use the **96240** Bearing Press Tool so that it pushes against the inner race of the **02469** Bearing and with an arbor press, install the bearing and plate assembly onto the rotor.
5. Check the clarence between the rotor and the bearing plate with a .001" thick feeler gage. Clarence should be .001" to .0015". If it is necessary, readjust clarence by repeating steps 3-5 with a different thickness shim.
6. Once the proper rotor/plate clarence is achieved, apply air motor lubricant (Dynabrade Air Lube; 10W/NR or equivalent) to the (4) **01480** Blades and install them into the door.
7. Use the **96216** Bearing Press Tool so that it pushes against the outer race of the **02696** Bearing and install it into the **02676** Rear Bearing Plate with an arbor press.
8. Install the **01476** Cylinder so that it rests against the **01478** Bearing Plate. **Note:** Make sure that the air inlet passage of the cylinder is properly aligned with the air inlet passage in the **02676** Bearing Plate.
9. Use the **96216** Bearing Press Tool so that it pushes against the inner race of the **02696** Bearing and install the rear bearing/plate assembly onto the motor assembly with an arbor press. **Important:** Carefully press the rear bearing/plate assembly onto the rotor until it touches the **01476** Cylinder. A "snug" fit should exist between the bearing plates and cylinder. If it is too tight the rotor will not turn freely and will cause damage to the bearings. If it is too loose the proper bearing preload will not be achieved.
10. Apply a small amount of grease to the seal of the **02696** Rear Bearing and place the **02679** Shield against the seal of the bearing.
11. Install the motor assembly into the housing so that the air passage node of the rear bearing plate aligns with the air passage notch inside the housing.
12. Apply a small amount of Loctite® #567 (or equivalent) to the threads of the motor housing and use a 34mm (or an adjustable wrench) to connect the gear case assembly to the motor housing. (Torque to 34 N•m/300 in. lbs.)

Motor Assembly Complete.

Planetary Gear Assembly:

1. Place front face (end with threaded male spindle) of **50023** Planetary Carrier against a block so that the carrier is sitting flat.
2. Start (2) **54472** Shafts by hand with a hammer into the two holes in the rear face of the carrier. (Be careful not to set the shafts too deep.)
3. Apply some of grease (Lubriplate #630 AA or equivalent) to the (2) **06213** Gears and position gear into the **50023** Planetary Carrier. Use an arbor press and carefully press the **54472** Shafts through the **06213** Gears so that the end of the shaft is flush with the top of the carriers rear face.
4. Place the flat side of **50022** Spacer against the front face of the carrier. Slide the **02649** Bearing onto the threaded shaft of the carrier and secure it with the **02600** Pinion. (Torque to 17 N•m/150 in. lbs.)
5. Install the **54468** Ring Gear onto the planetary carrier assembly so that the two notches face away from the threaded shaft.

(continued on next page)

Disassembly/Assembly Instructions - (continued)

6. Position the **96240** Bearing Press Tool against the inner race of the **54520** Bearing and carefully press the bearing onto the planetary carrier until the outer race touches the ring gear. This should achieve a snug fit between the carrier bearings and the ring gear establishing the proper preload on the bearings.
7. Slide the planetary carrier assembly into the **50024** Gear Case aligning the notches of the ring gear with the set screw and grease fitting access holes. Apply a small amount of Loctite® #567 to the **50784** Set Screw and install.
8. Lubricate the planetary gears through the gear case grease fitting with 2-3 plunges every 50 hours of use to achieve maximum gear life. Order and use **95542** Grease and **95541** Grease Gun.

Planetary Gear Assembly Complete.

Angle-Head Assembly:

Important: This assembly procedure should be preformed once the motor and planetary gear assemblies have been completed and tested for operation. Clean and inspect parts for wear or damage before assembling.

1. Press **01041** Gear Oil Fitting into **02041** Gear Oil Plate.
2. Carefully apply two drops of Loctite® #680 or equivalent to the recessed area of the **02031** Housing and press the gear oil plate along with gear oil fitting into the housing. (Allow 30 minutes for the adhesive to cure.)
3. Press **02033** Needle Bearing into the housing.
4. Place the **96239** Bearing Press Tool so that it rests against the inner race of the **54520** Bearing and press it onto the spindle.
5. Align the hex shaped area of the **02599** Gear with that of the spindle and press the gear into place.
6. Apply a small amount of Loctite® #567 or equivalent to the matting threads of the **02031** Housing, the **50024** Gear Case, and the **50019** Lock Nut.
7. Connect these parts while being aware of the right and left hand threads.
8. Place the **52296** Repair Collar around the motor housing and position the tool in a vise so that the angle housing end of the tool is pointing up.
9. Use a 34mm or an adjustable wrench on the **50019** Lock Nut while holding the angle housing stationary with the other hand. **Note:** The throttle lever can be positioned in 360˚ to the desired location. Allow for additional rotation when applying torque. (Torque to 23 N•m/200 in. lbs.)
10. Reposition the tool assembly in the vise so that the angle housings lock ring opening is facing up.
11. Soak the wicks in **95848** Gear Oil before installing into **02031** Housing. Install **02045** Top Wick first followed by **02044** Bottom Wick. Position truncated side of the wicks against the end of the pinion gear.
12. Install the **02028** Spindle into the angle housing. Apply a slight amount of pressure down on the spindle while rotating it back and forth checking for proper backlash or fit between the gears. A slight amount of backlash or clearance should exist between the bevel and pinion gears. If a tight fit exist then shim as needed placing the required thickness of shims between the outer race of **54520** Bearing and the bearing seat in the housing.
13. Place (1) **01486** Felt Silencer into the **02035** Lock Ring, and apply a small amount of Loctite® #567 or equivalent to the threads of the **02035** Lock Ring. Use **50971** Lock Ring Wrench to install the lock ring onto the **02031** Housing. (Torque to 23 N•m/200 in. lbs.)
14. Install the buff pad.

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

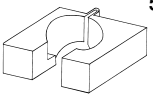
Important: Before operating, place 2-3 drops of Dynabrade Air Lube (P/N **95842**) directly into air inlet with throttle lever depressed. Operate tool for 30 seconds to determine if tool is operating properly and to allow lubricating oils to properly penetrate motor. Motor should now be tested for proper 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.

Loctite® is a registered trademark of Loctite Corp.

Optional 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.





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)



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



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.



96210 Bearing Removal Tool
- This tool is designed to pass through the I.D. of the bearing plate and push against the I.D. of the bearing.



96216 Bearing Press Tool
96240 Bearing Press Tool
- This tool is designed to safely press a bearing into a bearing plate and onto a shaft.

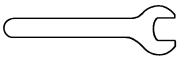


95542 Grease 10 oz.
- Multi-purpose grease for all types of bearings, cams, gears.
- High film strength; excellent resistance to water, steam, etc.
- Workable range 0˚ F to 300˚ F.

95541 Push-type Grease Gun
- One-hand operation.



50971 Lock Ring Tool
- Lock Ring Tool has a 3/8" square socket for use with 3/8" driver; breaker bar, ratchet head, or torque wrenches.



Open-End Wrenches
95262 – 14mm open-end.

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Email: Customer.Service@Dynabrade.com

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DYNABRADE, INC., 8989 Sheridan Drive • Clarence, NY 14031-1490 • Phone: (716) 631-0100 • Fax: 716-631-2073 • International Fax: 716-631-2524
DYNABRADE EUROPE S.àr.l., Zone Artisanale • L-5485 Wormeldange—Haut, Luxembourg • Telephone: 352 76 84 94 1 • Fax: 352 76 84 95 1

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