For Serial No. 0D1000 and Higher

Parts Page Reorder No. PD00•51
Effective July, 2000
Supersedes PD98•25

Models:
53510 — 18,000 RPM, 1/4" Collet
53511 — 20,000 RPM, 1/4" Collet
53512 — 18,000 RPM, 6mm Collet
53513 — 20,000 RPM, 6mm Collet

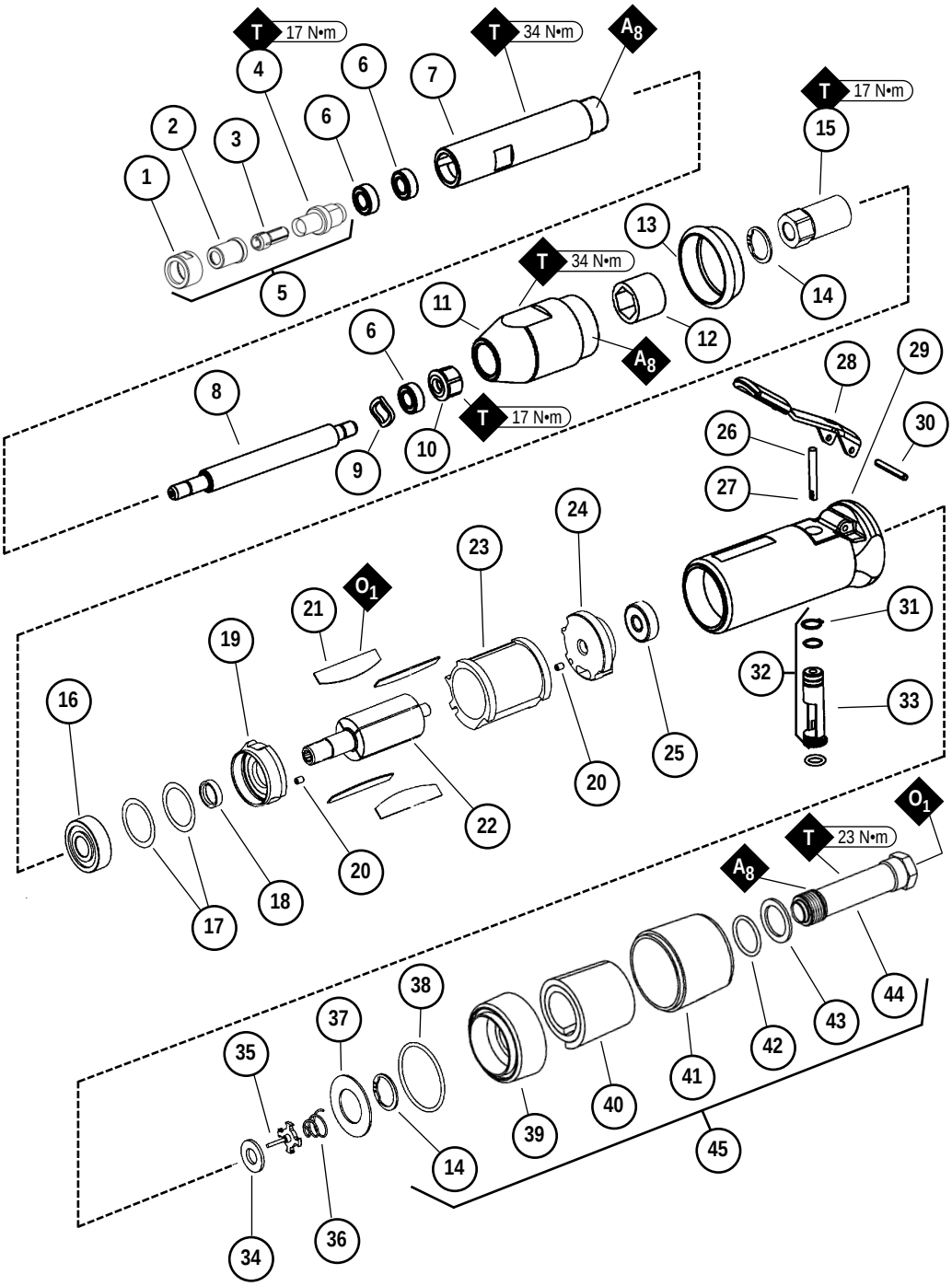
3" Extension Die Grinder

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.**

KEY

- O — Oil: **O_1 = Air Lube**
- A — Adhesive: **A_8 = Loctite #567**
- T — Torque: **N•m x 8.85 = In. - lbs.**



Index Key

No.	Part	Description
1	**51098**	Retaining Nut
2	**51107**	Cap
3	**01485**	1/4" Collet Insert
	01497	6mm Collet Insert
4	**51105**	Collet Body
5	**51124**	1/4" Collet Assembly
	51125	6mm Collet Assembly
6	**51078**	Bearing (3)
7	**53558**	Spindle Housing
8	**53556**	Spindle
9	**51075**	Wavy Washer
10	**53551**	Coupling Nut
11	**53550**	Adapter
12	**51072**	Coupler
13	**53175**	Collar
14	**95711**	Retaining Ring (2)
15	**51066**	Rotor Nut
16	**01007**	Bearing
17	**01121**	Shim Pack (3/pkg.)
18	**01010**	Spacer
19	**01008**	Front Bearing Plate
20	**50767**	Pin (2)
21	**01011**	Blades (4/pkg.)
22	**01148**	Rotor
23	**01013**	Cylinder
24	**01245**	Rear Bearing Plate
25	**01015**	Bearing
26	**01477**	Valve Stem
27	**95558**	Retaining Ring
28	**57344**	Throttle Lever Assembly
	01089	Safety Throttle Lever Assembly (Optional)
29	**53495**	Housing - **53510**
	53496	Housing - **53511**
	53497	Housing - **53512**
	53498	Housing - **53513**
30	**01017**	Spring Pin
31	**95730**	O-Ring
32	**01247**	Speed Regulator Assy.
33	**01024**	O-Ring
34	**01464**	Seal
35	**01472**	Tip Valve
36	**01468**	Spring
37	**01642**	18,000 Rpm Air Ctrl Ring
	01606	20,000 Rpm Air Ctrl Ring
38	**95438**	O-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

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.

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**: 1pt. 473ml.) 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 up to 40 SCFM @ 100 PSIG has 5/8" NPT female ports.
5. Use only genuine Dynabrade replacement parts. To reorder replacement parts, specify the **Model #**, **Serial #** and **RPM** of your machine.
6. A Motor Tune-Up Kit (P/N **96007**) 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.
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.

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)
53510/53512	.5 (373)	18,000	75 dB(A)	4/30 (850)	90 (6.2)	M8 x 1.0 male	2.5 (1.1)	12-7/8 (327)	1-7/8 (48)
53511/53513	.5 (373)	20,000	77 dB(A)	4/31 (878)	90 (6.2)	M8 x 1.0 male	2.5 (1.1)	12-7/8 (327)	1-7/8 (48)

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

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, retaining nut, cap and insert.
2. Using an adjustable wrench, remove **53558** Spindle Housing by turning counter-clockwise.
3. Remove **53556** Spindle by securing **53551** Coupling Nut in a vise, and loosen **51105** Collet Body.
4. Secure motor housing using padded vise with motor spindle facing upwards.
5. Using an adjustable wrench, remove **53550** Adapter, pull back **53175** Collar.
6. Remove **51072** Coupler.
7. Pull motor assembly from housing.
8. Press **01148** Rotor/Drive Shaft from **01015** Bearing and **01245** Bearing Plate.
9. Press **01015** Bearing from **01245** Bearing Plate.
10. Remove **01013** Cylinder and blades.
11. Secure **01148** Rotor in a padded vise and remove **51066** Rotor Nut (twist counterclockwise).
12. Slip off **01010** Spacer, **01008** Bearing Plate, shims and **01007** Bearing from **01148** Rotor.

Motor Disassembly Complete.

Housing Disassembly:

1. Position housing 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 air control ring from housing.
6. Using a 2.5mm drift pin, tap **01017** Pin from housing and remove throttle lever assembly.
7. Remove **95558** Retaining Ring using retaining ring pliers.
8. Push **01247** Regulator from valve body housing and remove o-rings.

Disassembly Complete.

Motor Assembly:

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

1. Place **01148** Rotor in padded vise with spindle facing upwards.
2. Slip **01010** Spacer onto **01148** Rotor.
3. Place a .002" shim into **01008** Front Bearing Plate as an initial spacing and slip **01007** Bearing into plate.
   Note: 01121 Shim Pack contains .001" and .002" shims.
4. Slip bearing/bearing plate assembly onto rotor, torque **51066** Rotor Nut onto rotor shaft. (17N•m/150in.-lbs.)
5. 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 2-4 with different shim if necessary.
6. Once proper rotor gap clearance is achieved, install well lubricated **01011** Blades (4) into rotor slots.
   Dynabrade recommends using their **95842** Air Lube.
7. Install cylinder over rotor. Be sure air inlet holes of cylinder face away from **01008** Front Bearing Plate.
8. Press **01015** Rear Bearing into **01245** 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. 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. A loose fit will not achieve the proper preload of motor bearings.
9. Install motor assembly into housing, making sure motor drops all the way into housing.
   Note: Align the rear bearing plate node with the notch inside the housing
10. Install **95711** Retaining Ring onto **51066** Rotor Nut using retaining ring pliers, and slip **51072** Coupler on to motor assembly.
11. Apply a small amount of Loctite® #567 to the threads of the **53550** Adapter and thread the adapter into the motor housing (Torque to 34 N•m/300in.-lbs.).

Motor Assembly Complete.

Extension Spindle Assembly:

1. Press (2) **51078** Bearing onto **53556** Spindle.
2. Thread the **51105** Collet Body onto **53556** Spindle and torque to 17 N•m/ 150 in.-lbs.
3. Install spindle with bearings into **53558** Spindle Housing.
4. Place **51075** Wavy Washer over **53556** Spindle and into **53558** Spindle Housing.
5. Press (1) **51078** Bearing over **53556** Spindle and into **53558** Spindle Housing.
6. Thread the **53551** Coupling Nut onto **53556** Spindle and torque to 17 N•m/150 in.-lbs.
7. Apply a small amount of Loctite® #567 (or equivalent) to threads of the spindle housing.
8. Hold the motor assembly with front pointing toward the floor. Pull the **51072** coupler as far forward as possible.

(continued on next page)

9. Thread the extension spindle assembly into the **53550** Adapter at the front of the motor assembly, so that the **53551** Coupling Nut engages the **51072** Coupler. (Torque to 34 N•m/300 in.-lbs.)
10. Pull the **53175** Collar forward onto **53550** Adapter.

Valve Body Assembly:

1. Insert **01247** Speed Regulator Assembly with o-rings installed into housing. Secure with **95558** Retaining Ring.
2. Secure valve body in vise with air inlet facing upwards.
3. Insert **01464** Seal into housing.
4. Line-up the hole in the **01477** 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. Reassemble muffler assembly. Slip **94523** Inlet Adapter through muffler assembly and secure with **95711** Retaining Ring.
6. Install air control ring into valve body housing.
7. Apply Loctite #567 PST Pipe Sealant (or equivalent) to threads of inlet bushing and install muffler assembly onto valve body (Torque 23.0 N•m/200 in. - lbs.).
8. Install throttle lever and **01017** Pin. Remove from vise.

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.

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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** Composite Swivel 1/4" NPT.
- **95461** 3/8" NPT.
- **95462** 1/2" NPT.

96007 Motor Tune-Up Kit

- Includes assorted parts to help maintain and repair motor.

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

DYNABRADE®

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