

Models:

51602 – 2,000 RPM Basic
51603 – 3,100 RPM Basic
51604 – 2,000 RPM Deluxe
51605 – 3,100 RPM Deluxe

Metric Wet Sander/Polisher

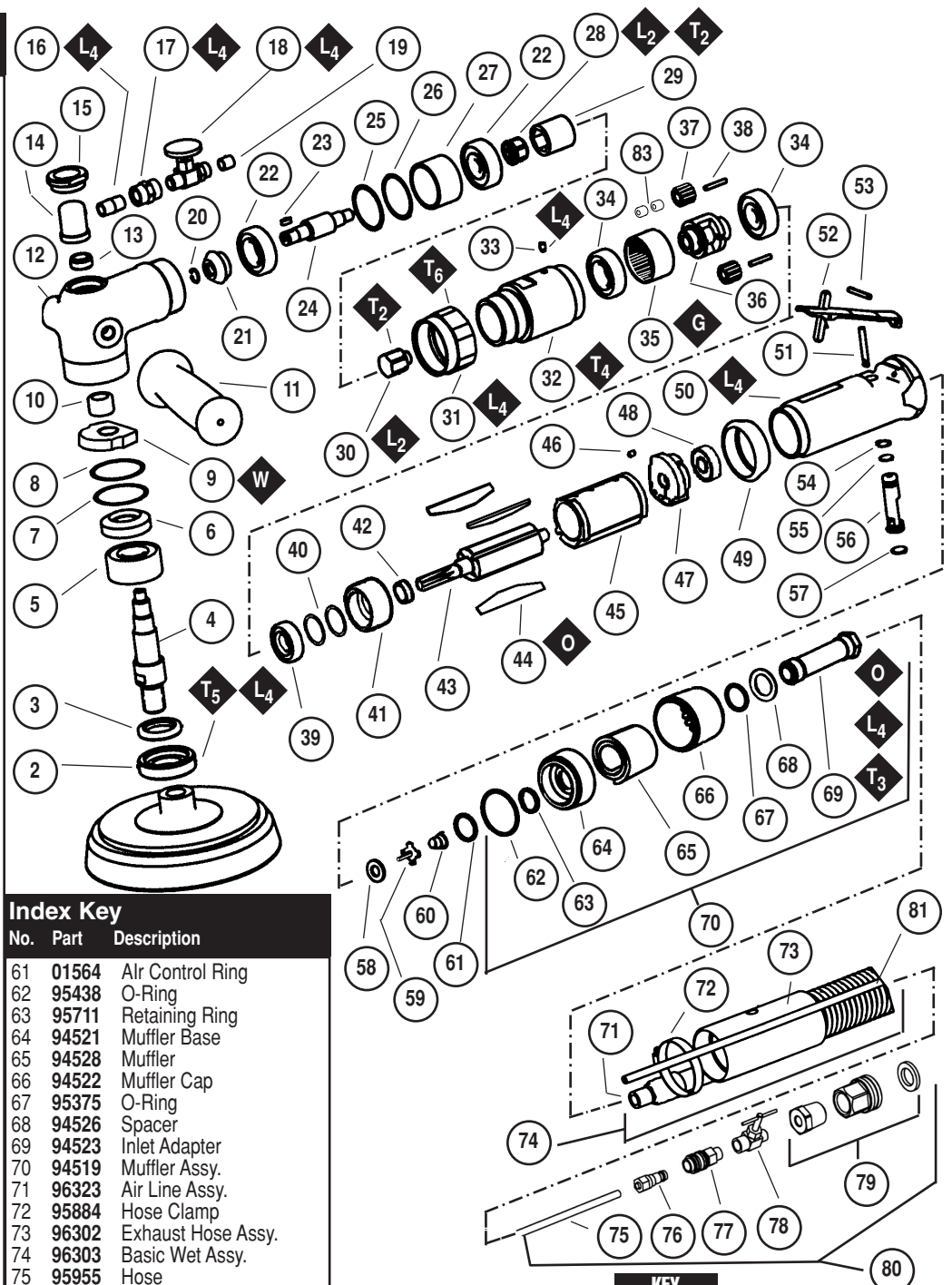
Air Motor and Machine Parts

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
2	50963	Retainer
3	50899	Shaft Seal
4	07181	Spindle Assy.
5	50887	Bearing
6	50997	Bevel Gear - 2,000 RPM
	50996	Bevel Gear - 3,100 RPM
7	96306	Shim (as req.)
8	96307	Shim (as req.)
9	02048	Wick
10	96325	Shell Bearing
11	53163	Handle Assy.
12	50981	Head Assy.
13	96324	Shaft Seal
14	50988	Inlet Block
15	50989	Spindle Cover
16	95759	Close Nipple
17	95760	Coupling
18	95761	Needle Valve
19	95841	Ferrule (Inc. 95761 Valve)
20	95939	Retaining Ring
21	52158	Bevel-Pinion-2,000 RPM
	52124	Bevel-Pinion-3,100 RPM
22	01266	Bearing
23	50435	Key
24	50985	Pinion Shaft
25	07154	Shim (as req.)
26	07155	Shim (as req.)
27	50986	Spacer
28	53551	Coupling Nut
29	50951	Coupler
30	50956	Adapter
31	50987	Lock Ring
32	50970	Gear Casing Assy.
33	04014	Screw
34	02552	Bearing
35	53191	Ring Gear
36	53180	Planetary Carrier
37	53193	Gear
38	53182	Gear Shaft
39	01007	Bearing
40	01121	Shim Pack (as req.)
41	53183	Front Bearing Plate
42	01010	Spacer
43	04017	Rotor
44	01185	Blades (4)
45	01028	Cylinder
46	50767	Pin
47	01721	Rear Bearing Plate
48	02649	Bearing
49	53175	Collar
50	51618	Housing - 51602
	51619	Housing - 51603
	51620	Housing - 51604
	51621	Housing - 51605
51	01477	Valve Stem
52	01089	Throttle Lever
53	01017	Spring Pin
54	95558	Retaining Ring
55	95730	O-Ring
56	01247	Speed Regulator
57	01024	O-Ring
58	01464	Seal
59	01472	Tip Valve
60	01468	Spring



Index Key

No.	Part	Description
61	01564	Air Control Ring
62	95438	O-Ring
63	95711	Retaining Ring
64	94521	Muffler Base
65	94528	Muffler
66	94522	Muffler Cap
67	95375	O-Ring
68	94526	Spacer
69	94523	Inlet Adapter
70	94519	Muffler Assy.
71	96323	Air Line Assy.
72	95884	Hose Clamp
73	96302	Exhaust Hose Assy.
74	96303	Basic Wet Assy.
75	95955	Hose
76	95962	Quick Coupler
77	95963	Female Connector
78	95965	Valve Assy.
79	95964	Hose Bib Assy.
80	96298	Deluxe Water Line Assy.
81	95579	Waterline Assy.
82	95430	Fitting
		Deluxe Models incl. #74 and #80
83	04026	Bearing (4)

KEY

O	Oil	G	95542 Grease	W	94848 Gear Oil
L	Loctite/Hernon:				
L₂	= Loctite #567				
L₄	= Loctite #567				
T	Torque: N·m x 8.85 = In. - lbs. T ₂ = 17 N·m, T ₃ = 23 N·m,				
	T ₄ = 28 N·m, T ₅ = 34 N·m, T ₆ = 45 N·m				

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 air tools must be used with a Filter-Regulator-Lubricator to maintain all warranties.

Operating Instructions:

Warning: Eye, face 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 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. An air line filter-regulator-lubricator must be used with this air tool to maintain all warranties. Dynabrade recommends the following: **11411** 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 100 CFM @ 100 PSI has 1/2" NPT female ports.
5. Lubricate planetary gears through **50970** Gear Casing grease fitting ever **50 hours** of use for maximum gear life.
6. Lubricate **02048** Wick System through angle gear head grease fitting ever **8 hours** of use for maximum gear life. **Important:** Use recommended angle gear oil only for wick system. Do not contaminate wick with any other oil or grease product (Order **95848** Gear Oil 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 **96178**) 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.
9. A lubrication accessory kit (P/N **50790**) is available which contains Dynabrade's **95542** Grease, **95541** Lubrication Gun (2) and **95848** Gear Oil.
10. 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.

Model Number	Length Inch (mm)	Height Inch (mm)	Weight Pound (N)	Air Flow Rate SCFM (LPM)	Sound Level	Motor HP (W)	Motor RPM	Air Pressure PSI (BArS)
51602	13.0" (330)	4"(102)	5.4 (24)	43 (1218)	82 dBA	.7 (522)	2,000	90 (6.2)
51603	13.0" (330)	4"(102)	5.4 (24)	43 (1218)	80 dBA	.73 (522)	3,100	90 (6.2)
51604	13.0" (330)	4.6"(117)	7.9 (35)	43 (1218)	79 dBA	.7 (522)	2,000	90 (6.2)
51605	13.0" (330)	4.6"(117)	7.9 (35)	43 (1218)	79 dBA	.73 (522)	3,100	90 (6.2)

Additional specifications: Air Inlet Thread 1/4" (6 mm) NPT • Hose Size 3/8" (9 mm)

Disassembly/Assembly Instructions - Sander / Polisher

Important: Manufacturer's warranty is void if tool is disassembled before warranty expires.

Please refer to parts breakdown for part identification.

Motor and Gear Casing Disassembly:

1. **Important:** inlet adapter must be secured before attempting to remove air fitting to avoid damaging composite motor housing.
2. Disconnect tool from power source, and secure motor housing, using the two molded flats, in a padded vise.
3. Remove **50970** Gear Casing Assembly using 40mm wrench flats provided.
4. Remove **04014** Set Screw from gear casing.
5. Push **50956** Hex Adapter through **50970** Gear Casing Assembly.
6. Remove **02552** Bearing from planetary assembly (opposite end from hex adapter).
7. Remove **53191** Ring Gear and spur gears from **53180** Planetary Carrier.
8. Secure planetary carrier in vise and remove **50956** Hex Adapter. Press carrier through **02552** Bearing.
9. Grab onto pinion gear and pull **53169** Motor Assembly from motor housing.
10. Secure **01028** Cylinder and press **04017** Rotor through **01721** Rear Bearing Plate.
11. Press **04017** Rotor through **53183** Front Bearing Plate and remove **01010** Spacer, **01007** Bearing and shims.

Motor Disassembly complete.

Motor Housing Disassembly:

1. Secure motor housing, using the two molded flats in a padded vise, with the air inlet facing upwards.
2. Remove **94519** Muffler assembly from motor housing.
3. Remove **01564** Air Control Ring, **01468** Spring, **01472** Tip Valve and **01464** Seal from motor housing.
4. Using a 2.5mm drift pin, tap **01017** Spring from housing and remove **01089** Throttle Lever and **01477** Valve Stem.
5. Remove **95558** Retaining Ring. Push **01247** Speed Regulator Assembly from housing.

Motor housing disassembly complete.

Right-Angle Housing and Spindle Disassembly:

1. Secure housing in a padded vise, and remove **50987** Lock Ring (left-hand thread) using 44mm wrench flats.
2. Remove **50951** Coupler and pull **53351** Coupling Nut and pinion assembly from housing.
3. Secure pinion in a padded vise and remove **53551** Coupling Nut, remove **01266** Bearing, **50986** Spacer and shims.
4. Secure **01266** Bearing and push **50985** Pinion Shaft through pinion and bearing, remove **50435** Key.
5. Secure housing in a padded vise with spindle facing upwards.
6. Remove **50963** Retainer using an adjustable pin wrench (left-hand thread).
7. Pull spindle assembly from angle-housing. Remove shims and **02048** Wick from housing.
8. Secure **50887** Bearing and push spindle through bevel gear and bearing.
9. Remove **96325** Shell Bearing using **57099** Bearing Puller.

Angle-Housing disassembly complete.

Motor and Gear Casing Reassembly:

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

1. Place **04017** Rotor in padded vise with threaded spindle facing upwards.
2. Slip **01010** Spacer onto **04017** Rotor.
3. Place a .002" shim into **53183** Front Bearing Plate as an initial spacing and slip **01007** Bearing into plate. **Note:** **01121** Shim Pak contains .001" and .002" shims.
4. Press bearing/bearing plate assembly onto rotor.
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 **01185** Blades (4) into rotor slots. Dynabrade recommends using their **95842** Air Lube.
7. Install cylinder over rotor/pinion. Be sure air inlet holes of cylinder face away from **53183** Front Bearing Plate.
8. Press **02649** Rear Bearing into **01721** 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.
10. Secure motor housing in padded vise so motor cavity faces upwards. Install motor assembly into housing. Be sure motor inlet is facing the handle and it drops all the way into housing.
11. Press front **02552** Bearing onto front end of **53180** Planetary Carrier.
12. Apply #271 Loctite® to **50956** Hex Adapter and install onto **53180** Planetary Carrier (torque 17.0 N•m/150 in. - lbs.).
13. Install **53193** Gears, **04026** Bearings and **53182** Gear Shafts onto planetary carrier.
14. Slip **53191** Ring Gear over gears and press rear **02552** Bearing onto planetary carrier.
15. Install planetary carrier assembly into **50970** Gear Casing by aligning the slot in **53191** Ring Gear with set screw hole.
16. Apply #567 Loctite (or equivalent) to **04014** Set Screw and install into **50970** Gear Casing.
17. Apply two drops of #271 Loctite adhesive to motor housing threads.
18. Install gear casing sub-assembly onto motor housing to secure motor, torque 28 N•m/250 in-lbs.

Disassembly/Assembly Instructions - Sander / Polisher (continued)

Motor Housing Reassembly:

1. Insert **01247** Regulator with o-rings and valve stem, place into motor housing. Secure with **95558** Retaining Ring.
2. Secure valve body in padded vise with inlet facing upwards. Insert **01464** Seal.
3. Line up hole in valve stem with hole in 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 towards tip valve).
4. Assemble felt muffler and place in **94522** Muffler Cap. Install **94521** Muffler Base onto muffler cap.
5. Install **94538** O-Ring into groove on muffler base. Place **95375** O-Ring and **94526** Spacer into recessed area of muffler cap.
6. Slip **94523** Inlet Adapter through muffler assembly and install **95711** Retainer Ring into groove on inlet adapter.
7. Install **01564** Air Control Ring into valve body housing.
8. Apply #567 Loctite Pipe Sealant to threads of **94523** Inlet Adapter and install entire muffler assembly onto valve body (torque 23.0 N•m/200 in-lbs.).
9. Replace air fitting. Secure inlet adapter with a wrench before tightening air fitting. Install throttle lever and **01017** Pin.

Right-Angle Housing and Spindle Reassembly:

1. Secure **50985** Pinion Shaft in padded vise with key slot end up. Install **02552** Bearing onto pinion shaft.
2. Press pinion gear onto pinion shaft with **50435** Key in key slot. replace **95939** Retaining Ring.
3. Secure pinion in padded vise and install **50986** Spacer, **01266** Bearing and **53551** Coupling Nut.
4. The 50986 Spacer must fit snug between the two **01266** Bearings (shim required to achieve a snug fit).
5. Apply #271 Loctite adhesive to spindle thread and install **53551** Coupling Nut (torque 17 N•m/150 in-lbs.).
6. Install **96235** Shell Bearing into angle housing and insert pinion/shaft assembly.
7. Apply #567 Loctite to angle housing and install **50987** Lock Ring (left-hand thread, 44mm wrench flats).
8. Insert **50951** Coupling over **53551** Coupling Nut.
9. Install **50987** Lock Ring and angle housing sub-assembly onto **50970** Gear Casing. Take care in the aligning of the two male hex adapters to the **50951** Coupling (torque 45 N•m/400 in-lbs.).
10. Press **50887** Bearing and bevel gear onto spindle assembly.
11. Secure angle housing with drive spindle cavity facing upward and install well lubricated **02048** Wick (wick must be completely saturated with **95848** Gear Oil before installation). Note: Do not contaminate wick with any other oil or grease product.
12. Insert spindle assembly and check for gear alignment and backlash. Install shims as required (Minimum backlash is recommended for maximum gear life. Make sure there is clearance throughout 360° revolution.).
13. Install **50963** Retainer with **50899** Shaft seal in place (left-hand thread), torque 34 N•m/300 in-lbs.

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

Important: Motor should now be tested for proper operation at 90 PSI. 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. 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

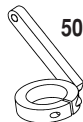
Loctite® is a registered trademark of Loctite Corp.

Accessories



96178 Motor Tune-Up Kit

- Includes assorted parts to help maintain motor in tip-top shape.



50984 Top Handle Assy.



50679 - 26mm Wrench



57099 Bearing Puller



Dynabrade Air Lube (10W/NR)

- Formulated for pneumatic equipment.
- Absorbs up to 10% of its weight in water.
- Prevents rust and formation of gum/sludge for longer tool operation with greater power and less downtime.

95821: 4 oz. (118 ml). **95842:** 1 pt. (473 ml).

95843: 1 gal. (3.8 l).



Grease

- 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).

95542: 10 oz. (283.5 g) tube.



Dynabrade Angle Gear Oil

- Specifically formulated for to saturate wick system in right angle gear head.

95848: 2 oz. tube

95849: 10 oz. tube

50790 Dynabrade Lubrication Accessory Kit

- Includes: **95848:** Gear Oil 2 oz. tube,
95842: Grease 1 pt. (473 ml).
95541: Lubricant Gun (2)



Visit our new Web Site at <http://www.dynabrade.com>