

Router

.7 Hp/Straight-Line/Front Exhaust

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Models:

51330 – 20,000 RPM, 1/4" Collet

51331 – Router Kit



! WARNING

Read and understand this tool manual before operating your air tool. Follow all safety rules for the protection of operating personnel as well as adjacent areas. Always operate, inspect and maintain this tool in accordance with the American National Safety Institute (ANSI) Safety Code for Portable Air Tools – B186.1. For additional safety information, refer to Safety Requirements for the Use, Care and Protection of Abrasive Wheels – ANSI B7.1, Code of Federal Regulation – CFR 29 Part 1910, European Committee for Standards (EN) Hand Held Non-Electric Power Tools – Safety Requirements and applicable State and Local Regulations.

SAFETY LEGEND

	! WARNING Read and understand tool manual before work starts to reduce risk of injury to operator, visitors, and tool.	
	! WARNING Eye protection must be worn at all times, eye protection to conform to ANSI Z87.1.	
	! WARNING Respiratory protection to be used when exposed to contaminants that exceed the applicable threshold limit values required by law.	
	! WARNING Practice safety requirements. Work alert, have proper attire, and do not operate tools under the influence of alcohol or drugs.	
	! WARNING Ear protection to be worn when exposure to sound, exceeds the limits of applicable Federal, State or local statutes, ordinances and/or regulations.	
	! WARNING Air line hazard, pressurized supply lines and flexible hoses can cause serious injury. Do not use damaged, frayed or deteriorated air hoses and fittings.	

SAFETY INSTRUCTIONS

Carefully Read all instructions before operating or servicing any Dynabrade® Abrasive Power Tool.

Products offered by Dynabrade are not to be modified, converted or otherwise altered from the original design without expressed written consent from Dynabrade, Inc.

Tool Intent: Routers are ideal for use on wood, solid surfaces, plastics, laminate trimming, surface planing, beveling, and cornering.

Do Not Use Tool For Anything Other Than Its Intended Applications.

Training: Proper care, maintenance, and storage of your tool will maximize its performance.

- Employer's Responsibility – Provide router operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Abrasive/accessory RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Before mounting an accessory, visually inspect for defects. Do not use defective accessories.
- Mount only recommended accessories. See back page of manual and Dynabrade catalog.
- Follow tool specifications before choosing size and type of accessory.
- Only use recommended fittings and air line sizes. (See tool Machine Specifications table.)
- Turn off router after cut has been completed.
- DO NOT touch router bits after use – extremely hot.
- DO NOT operate with out cutter guard in place.
- DO NOT use – cut-off wheels, and saw blades.

OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: approved eye, face, respiratory, hearing and body protection.

Caution: Hand, wrist and arm injury may result from repetitive work, motion and overexposure to vibration.

- Keep hand and clothing away from working end of the air tool.

Operation: Be sure that any loose clothing, hair and all jewelry is properly restrained.

- Secure inlet bushing on air tool with a wrench before attempting to install or remove the air fitting to avoid damaging housing assembly.
- Check tool RPM (speed) with tachometer with air pressure set at 90 PSIG while the tool is running. If tool is operating at a higher speed than the RPM marked on the tool housing, or operating improperly, the tool must be serviced and corrected before use.

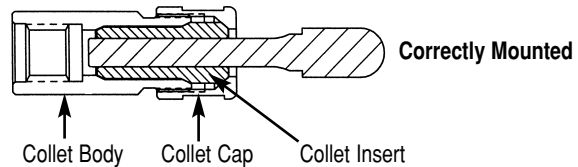
Caution: Tool RPM must never exceed abrasive/accessory RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

- With power source disconnected from air tool, mount recommended accessory into collet assembly.
- The mandrel diameter of the abrasive/accessory must insert freely, but not loosely, all the way to the base of the collet body before tightening the collet cap. Use wrenches provided.

Caution: The mandrel shall be inserted to the full depth of the gripping jaws of the collet. At least one-half the mandrel length shall be inserted into the collet to prevent excessive overhang. Refer to accessory manufacturer's instructions for proper overhang. (Ref. ANSI B186.1)

Warning: Sliding the accessory's mandrel out from the collet insert creates an "OVER HANG" condition. This practice is NOT recommended, reducing the free speed of the tool by reducing the air pressure must be done to avoid cutting tool breakage and serious injury.

MANDREL MOUNTING



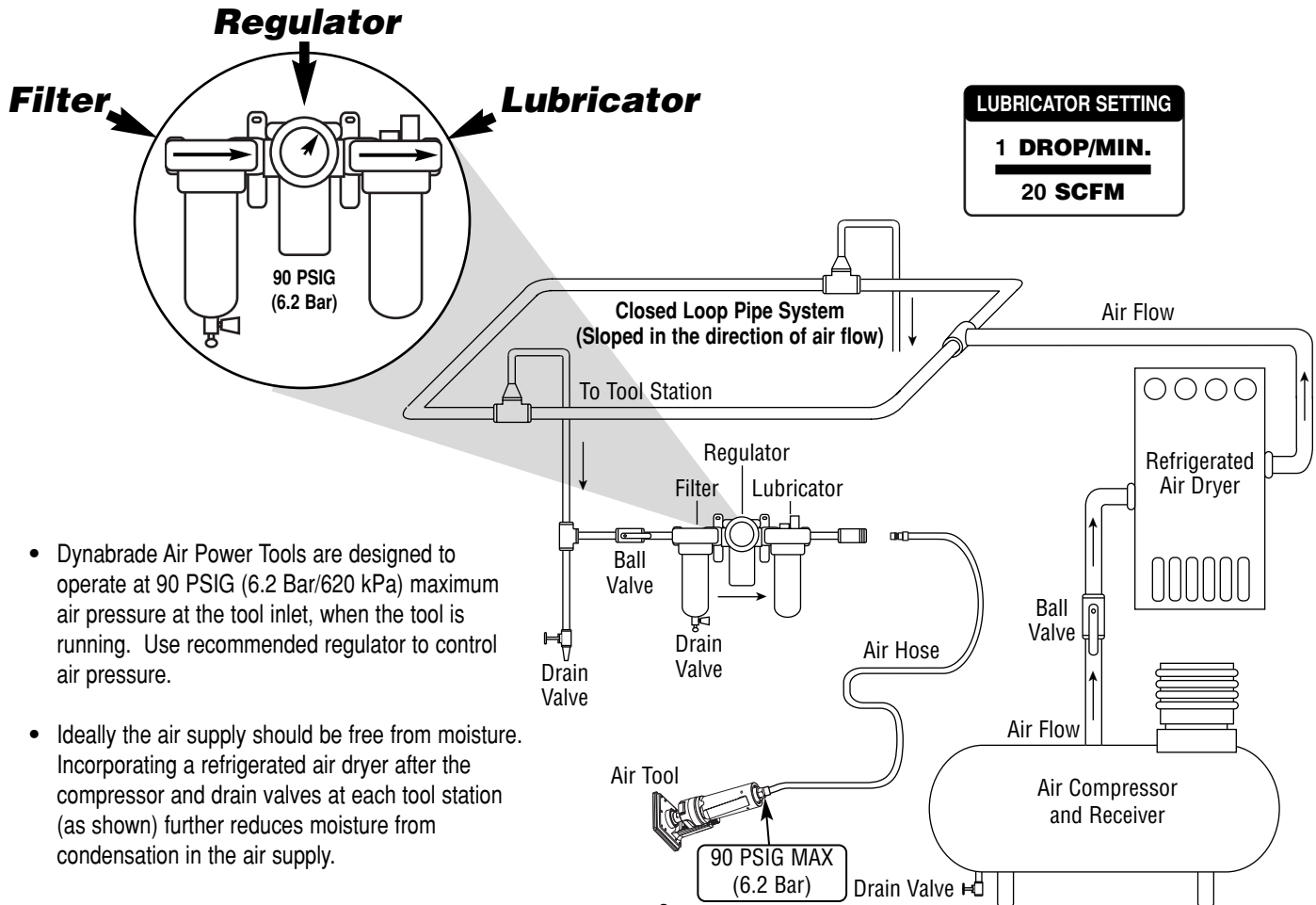
- Connect air tool to power source. Be careful NOT to depress throttle lever in the process. **Do not expose air tool to inlet pressure above 90 PSIG or (6.2 Bars).**

Caution: After installing the accessory, before testing or use and/or after reassembling tool, the router must be started at a reduced speed to check for good balance. Gradually increase tool speed. DO NOT USE if tool vibration is excessive. Correct cause, and retest to insure safe operation.

- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.
- Use a vise or clamping device to hold work piece firmly in place.
- Do not apply excessive force on tool or apply "rough" treatment to it.
- Always work with a firm footing, posture and proper lighting.

Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Air System



- Dynabrade Air Power Tools are designed to operate at 90 PSIG (6.2 Bar/620 kPa) maximum air pressure at the tool inlet, when the tool is running. Use recommended regulator to control air pressure.
- Ideally the air supply should be free from moisture. Incorporating a refrigerated air dryer after the compressor and drain valves at each tool station (as shown) further reduces moisture from condensation in the air supply.

Maintenance Instructions

Important: A Preventative Maintenance Program is recommended whenever portable power tools are used.

- Use only genuine Dynabrade replacement parts to insure quality. To order replacement parts, specify **Model#**, **Serial#** and **RPM** of your air tool.
- All Dynabrade Rotary Vane air tools must be used with a Filter-Regulator-Lubricator to maintain all warranties. Dynabrade recommends the following: **11405** Air Filter-Regulator-Lubricator (FRL) – Provides accurate air pressure regulation and two stage filtration of water contaminants. Operates 40 SCFM/1,133 LPM @ 100 PSIG with 3/8" NPT female ports.
- 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 on the filter-lubricator to 4 drops per minute). Dynabrade Air Lube (P/N **95842**: 1 pt 473 ml) is recommended.

Routine Preventative Maintenance: Check free speed of router using a tachometer.

- Mineral spirits are recommended when cleaning the tool and parts. Do not clean tool or parts with any solvents or oils containing acids, esters, ketones, chlorinated hydrocarbons or nitro carbons.
- DO NOT clean or maintain tools with chemicals that have a low flash point (example: WD-40®).
- A Motor Tune-Up Kit (P/N **96532**) is available which includes high wear and medium wear motor parts.
- Air tool labels must be kept legible at all times, if not, reorder label(s) and replace. User is responsible for maintaining specification information i.e.: Model #, S/N, and RPM. (See Assembly Breakdown)
- Blow air supply hose out prior to initial use.
- Visually inspect air hoses and fittings for frays, visible damage and signs of deterioration. Replace damaged or worn components.
- Refer to Dynabrade's Warning/Safety Operating Instructions Tag (Reorder No. **95903**) for safety information.

After maintenance is performed on tool, add a few drops of Dynabrade Air Lube (P/N **95842**) to the air line and start the tool a few times to lubricate air motor. Check for excessive tool vibration.

Handling and Storage:

- Use of tool rests, hangers and/or balancers is recommended.
- Protect tool inlet from debris (see Notice below).
- DO NOT carry tool by air hose.
- Protect accessories from exposure to water, solvents, high humidity, freezing temperature and extreme temperature changes.
- Store accessories in protective racks or compartments to prevent damage.

Machine Specifications

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)
All Models	.7 (522)	20,000	1/4" NPT	91 dB(A)	5/34 (963)	90 (6.2)	3/8"-24 male	1.7 (.8)	6 (152)	1-7/8 (48)

Additional Specifications: Hose I.D. Size 3/8" (10 mm)

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. Dirt 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.

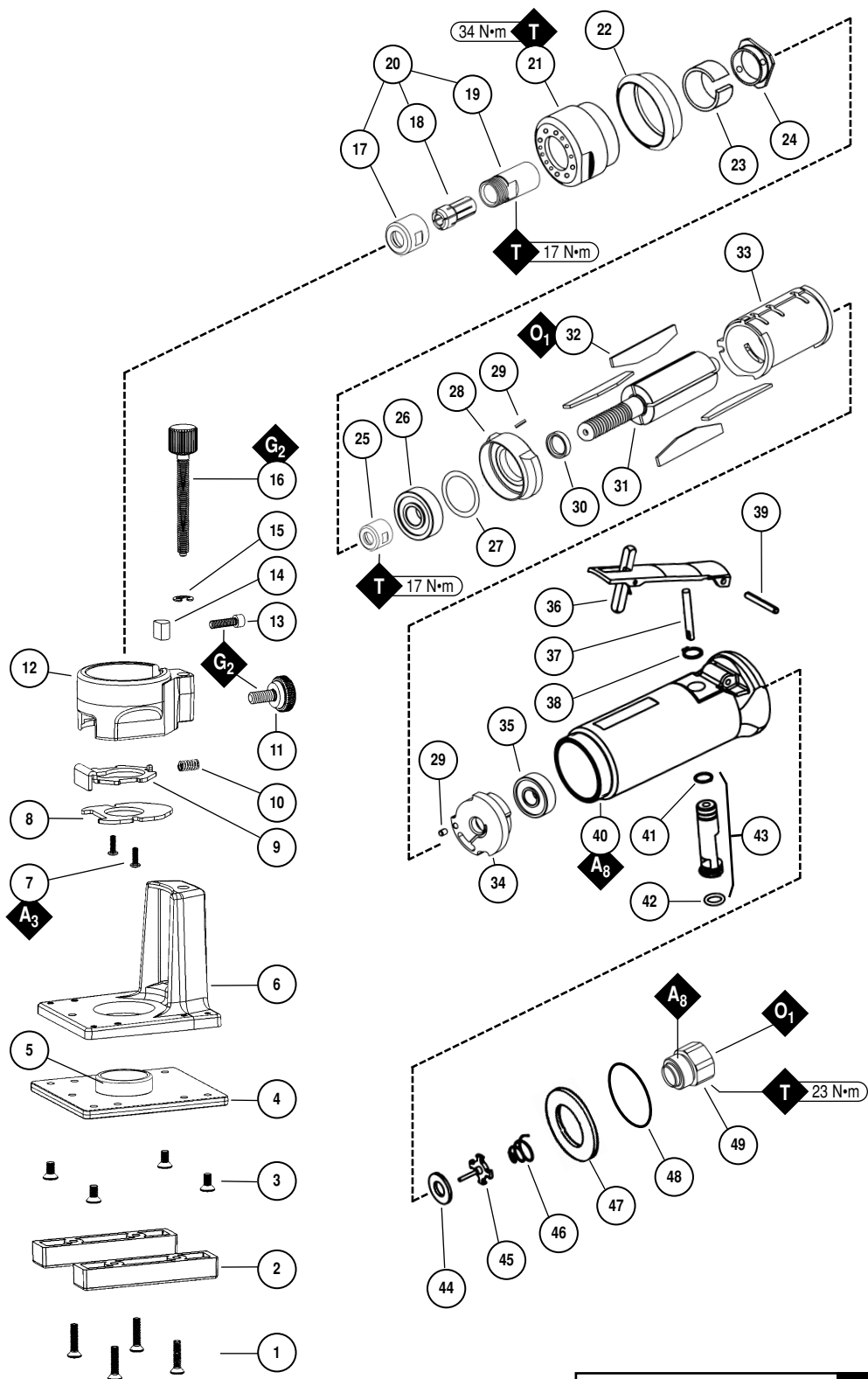
.7Hp Router

Complete Assembly Breakdown

Index Key

No.	Part #	Description
1	95162	Screw (4)
2	52084	Rail (2)
3	95128	Screw (4)
4	52083	Sub Base
5	52085	Guard
6	52080	Base
7	95257	Screw (2)
8	52081	Cover Plate
9	52082	Spindle Lock
10	96448	Spring
11	52079	Lock Screw
12	52078	Collar
13	95311	Screw
14	40029	Motor Lock
15	12174	E-Clip
16	52077	Lead Screw
17	50012	Collet Cap
18	50013	Collet Insert
19	50011	Collet Body
20	50010	Collet Assembly
21	01371	Lock Ring
22	53175	Rubber Collar
23	01727	Silencer
24	01726	Air Control Ring
25	01708	Rotor Nut
26	01007	Bearing
27	01121	Shim (3/pkg.)
28	01008	Front Bearing Plate
29	50767	Pin (2)
30	01010	Spacer
31	55025	Rotor
32	01185	Blades (4/pkg.)
33	01028	Cylinder
34	01722	Rear End Plate
35	02649	Bearing
36	01089	Safety Lock Lever
37	01477	Valve Stem
38	95558	Retaining Ring
39	01017	Pin
40	51337	Housing – 51330
41	95730	O-Ring
42	01024	O-Ring
43	01247	Speed Reg. Assy.
44	01464	Seal
45	01472	Tip Valve
46	01468	Spring
47	53190	Block Plate
48	96065	O-Ring
49	01494	Inlet Bushing

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



KEY	
O	Oil: O ₁ = Air Lube
A	Adhesive: A ₃ = Loctite #242 A ₈ = Loctite #567
T	Torque: N·m x 8.85 = In. - lbs.
G	Grease: G ₁ = Lubriplate 630 AA

Disassembly Instructions - .7Hp/Front Exhaust Router

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

Notice: 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.

Disconnect tool from power source before tool repair.

Disassembly:

1. Loosen **95311** Motor Lock Screw.
2. Remove air motor from **52078** Router Collar.
3. Secure air tool in vise using flats provided on motor housing.
4. Remove collet cap and insert.
5. With an adjustable wrench remove **01371** Lock Ring by turning counter-clockwise. Remove air control ring, and muffler insert.
6. Pull motor assembly from housing.
7. Reposition motor housing in vise so inlet bushing is pointing upward.
8. Unscrew **01494** Inlet Bushing turning counter-clockwise.
9. Using needle nose pliers, remove **01468** Spring, **01472** Tip Valve and **01464** Seal.
10. Resecure housing in vise so throttle lever and **01017** Pin are accessible.
11. Using a 2.5 mm diameter drift pin and a hammer, remove **01017** Pin and throttle lever from housing.
12. Remove **95558** Retaining Ring and push **01469** Speed Regulator from housing.

Disassembly Complete.

Motor Disassembly:

1. Fasten a 2 in. bearing separator around the rear portion of the **01028** Cylinder, place the separator on the table of a #2 arbor press (Dynabrade Arbor Press P/N **96232**) so that the threaded rotor shaft is pointing down.
2. Use a 3/16" flat nose punch as a press tool and press the back end of the rotor out of the **02649** Rear Bearing. Set the loose parts aside.
3. Secure the rotor body in a soft (bronze or aluminum) jaw vise and remove the **50011** Collet Body turning it counter clockwise. Also, remove the **01708** Rotor Nut in the same manner.
4. Remove the **01008** Front Bearing Plate along with the front bearing. Push the **01007** Front Bearing out of the front bearing plate and remove the shims. Also, pull the spacer off the rotor shaft.
5. The **02649** Bearing can be removed from the rear bearing plate with the **96213** Bearing Removal Tool and an arbor press.

Motor Disassembly Complete.

Assembly Instructions - .7Hp/Front Exhaust Router

Motor Assembly:

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

1. Place **55025** Rotor in soft jaw (bronze or aluminum) vise with threaded spindle pointing upwards.
2. Slip **01010** Spacer onto rotor.
3. Place a .002" shim into **01008** Front Bearing Plate as an initial spacing (**Note:** **01121** Shim Pack contains .001" and .002" shims) and slip **01007** Bearing into plate.
4. Install bearing/bearing plate assembly onto rotor.
5. Tighten **01708** Nut 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 lubricated **01185** 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 **02649** Rear Bearing into **01722** 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 flats provided on motor housing.
11. Install motor assembly into housing. Be sure motor drops all the way into housing.

(continued on next page)

Assembly Instructions - (Continued)

Important: Manufacturer's warranty is void if tool is disassembled before warranty expires. Please refer to parts breakdown for part identification.

Motor Assembly:

12. Assemble muffler insert and air control ring into **01371** Lock Ring and install onto motor housing (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 **01247** Speed Regulator Assembly with **01477** Valve Stem into housing. Secure with **95558** Retaining Ring.
2. Insert **01464** Seal into housing.
3. 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).
4. Apply Loctite® #567 PST Pipe Sealant (or equivalent) to threads of **01494** Inlet Adapter and install onto motor housing. (Torque 23 N•m/200 in. - lbs.)
5. Install throttle lever and **01017** Pin. Remove from vise.

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 inlet with throttle lever depressed. Operate tool for 30 seconds to allow air lube to properly lubricate internal motor components. Motor should now be tested for proper operation at 90 PSIG max. If tool operates at a higher RPM than marked on the tool or if vibration and sound levels seem abnormal, the tool should be serviced to correct the cause before use.

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Instructions for converting .7 hp Router to Die Grinder:

1. Disconnect tool from air supply.
2. Loosen **95311** Motor Lock Screw.
3. Remove router base assembly.

Reverse procedure for conversion of Die Grinder to Router.

Instructions for height adjustment of cutter:

1. Disconnect tool from air supply.
2. Loosen **52079** Lock Screw.
3. Adjust height by turning **52077** Lead Screw Knob until cutter is in desired location.
4. Tighten **52079** Lock Screw.

Height Adjustment Complete.

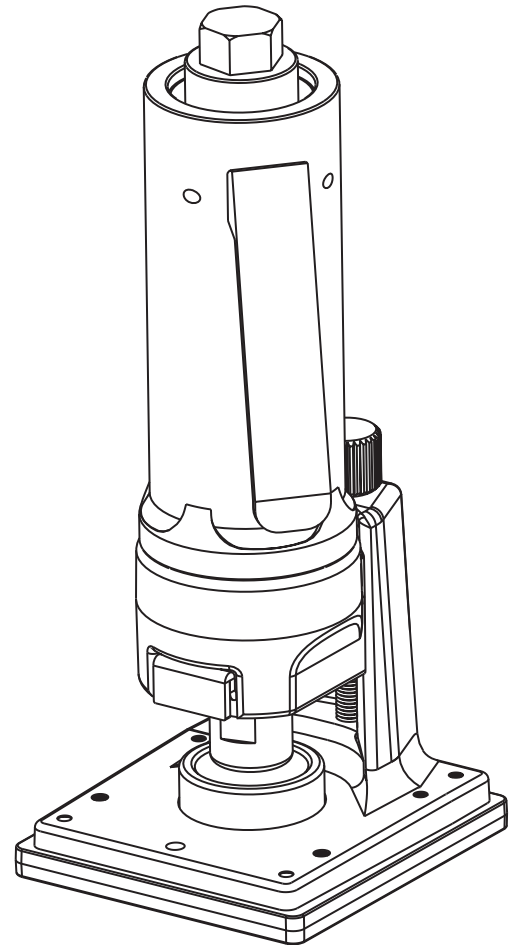
Instructions for removal of rails:

1. Disconnect tool from air supply.
2. Loosen and remove (4) **95710** Screws.
3. Remove (2) **52084** Rails.

Reverse procedure for installation of rails.

Instructions for operating spindle lock:

1. Disconnect tool from air supply.
2. Depress **52082** Spindle Lock.
3. Rotate collet body until spindle lock engages shaft.
4. Loosen **50012** Collet Cap using a 19 mm open-end wrench.
5. Change router bit (refer to mandrel mounting instructions, page 2).
6. Tighten **50012** Collet Cap with spindle lock still depressed.
7. Release spindle lock before operation of tool.



Preventative Maintenance Schedule

For Straight-Line .7Hp Routers

This service chart is published as a guide to expectant life of component parts. The replacement levels are based on average tool usage over one year. Dynabrade Inc. considers one year usage to be 1,000 hours or 50% of a man year. Parts included in motor tune-up kit are identified by High Wear and Medium Wear items.

Parts Common to all Models:

LEGEND	
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.
R1	Replace each time tool is disassembled.
R2	Replace each second time tool is disassembled.



96529 – Motor Tune-Up Kit

- Tune-Up Kit includes high wear and medium wear motor parts.

Index #	Part Number	Description	Number Required	High Wear 100%	Medium Wear 70%	Low Wear 30%	Non-Wear 10%
1	95162	Screw	4				X
2	52084	Rail	2			X	
3	95128	Screw	4				X
4	52083	Sub Base	1			X	
5	52085	Guard	1				X
6	52080	Base	1				X
7	95257	Screw	2				L
8	52081	Cover Plate	1				X
9	52082	Spindle Lock	1				X
10	96448	Spring	1			L	
11	52079	Lock Screw	1			X	
12	52078	Collar	1				X
13	95311	Screw	1				X
14	40029	Motor Lock	1				X
15	12174	E-Clip	1			L	
16	52077	Lead Screw	1			X	
17	50012	Collet Cap	1			X	
18	50013	Collet Insert	1			X	
19	50011	Collet Body	1			X	
20	01371	Lock Ring	1			X	
21	53175	Rubber Collar	1				X
22	01727	Silencer	1		T, X		
23	01726	Air Control Ring	1				X
24	01708	Rotor Nut	1				X
25	01007	Bearing	1		T, X		
26	01121	Shim (3/pkg.)	1		T, D		
27	01008	Front Bearing Plate	1			X	
28	50767	Pin	2				D
29	01010	Spacer	1			X	
30	55025	Rotor	1			X	
31	01185	Blades (4/pkg.)	1	T, X			
32	01028	Cylinder	1			X	
33	01722	Rear End Plate	1				X
34	02649	Bearing	1		T, X		
35	01089	Safety Lock Lever	1			X	
36	01477	Valve Stem	1		T, X		
37	95558	Retaining Ring	1		T, D		
38	01017	Pin	1		T, X		
39	51337	Housing	1			X	
40	95730	O-Ring (Included w/ 01247)	1		X		
41	01024	O-Ring (Included w/ 01247)	1		X		
42	01247	Speed Regulator Assembly	1		T, X		
43	01464	Seal	1		T, X		
44	01472	Tip Valve	1		T, X		
45	01468	Spring	1		T, L		
46	53190	Block Plate	1				X
47	96065	O-Ring	1		T, X		
48	01494	Inlet Bushing	1				X

Note: Please refer to page 4 of tool manual for specific part number.

Optional Accessories



Dynaswivel®

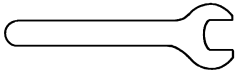
Swivels 360° at two locations which allows an air hose to drop straight to the floor, no matter how the tool is held.

- 94300 1/4" NPT.



96529 Motor Tune-Up Kit

- Includes assorted parts to help maintain and repair motor.



Open-End Wrenches

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



Collet Inserts

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



93338 Router Bit Set

- Includes six router bits, a general assortment to accomplish the most popular of tasks.



Composite-Style Coupler and Plug Assemblies

- Easy connect/disconnect by single push-button action.
- Lightweight 1.4 oz. (.05 Kg), non-marring composite material.

94990 - 1/4" Female NPT coupler with 1/4" Male Plug.



Coupler and Plug Assemblies

- Durable metal construction.

95676 - 1/4" Female NPT coupler with 1/4" Male Plug.

Reference Contact Information

1. American National Safety Institute – ANSI

25 West 43rd Street
Forth Floor
New York, NY 10036
Tel: 1 (212) 642-4900
Fax: 1 (212) 398-0023

3. European Committee for Standardization

Rue de Stassart 36
B - 1050 Brussels, Belgium

2. Government Printing Office – GPO

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