



**0.4 hp. Right Angle Tools**

**Models:** 50210, 50211, 50561, 50570

Lubricants:

95842 Dynabrade Air Lube 10W/NR

95848 Gear Oil

Lubricant Gun:

95541 Push-Type Gun



**0.4 hp. Right Angle Tools**

**Models:** 50210, 50211, 50561, 50570

96461 Repair Collar

52296 Repair Collar

50971 Lock Ring Tool

96346 Bearing Separator (2")

96232 Arbor Press (#2)

96210 Bearing Removal Tool

96239 Bearing Press Tool

96242 Bearing Press Tool



## Component Wear Percentages

### 3" Diameter, Right Angle Vacuum Disc Sanders – 0.04 hp.

Models: 50210, 50211, 50561 & 50570

Notes: This service chart is published as a guide to expectant life of components. The replacement levels are based on average tool usage over one year. Dynabrade, Inc. considers one year usage to be 1,000 hours. (T) Indicates the parts included in the **96179** Tune-Up Kit.

Item No.	Part No.	Description	No. Req.	High	Medium	Low	Non-Wear
1	51346	Pad	1			X	
2	50771	Shroud - Standard	1		X		
	50789	Shroud - Trimmed	1		X		
3	97326	Clamp	1				X
4	02029	Spindle	1				X
5	02035	Lock Nut	1				X
6	01486	Felt Silencer	1		T		
7	54520	Bearing	1			T	
8	97116	Shim - .001" (0.03 mm)	1			T	
9	97117	Shim - .002" (0.05 mm)	1			T	
10	97118	Shim - .003" (0.08 mm)	1			T	
11	02597	Gear	1				X
12	02044	Bottom Wick - 12 & 15K RPM	1		T		
13	02045	Top Wick - 12,000 RPM	1		T		
14	02031	Housing (includes: 01041, 02041)	1				X
15	01041	Gear Oil Fitting	1				X
16	02041	Gear Oil Plate	1				X
17	02033	Needle Bearing	1			X	
18	02598	Pinion	1				X
19	01461	Lock Nut	1				X
20	02649	Bearing	1			T	
21	54543	Shim - .001" (0.03 mm)	1		T		
22	54544	Shim - .002" (0.05 mm)	1		T		
23	54551	Shim - .003" (0.08 mm)	1		T		
24	01478	Front Bearing Plate	1			X	
25	50767	Pin	2			X	
26	01479	Spacer	1			X	
27	02037	Rotor	1				X
28	01480	Vane (4/Pkg.)	1	T			
29	01476	Cylinder	1			X	
30	02676	Rear Bearing Plate	1			X	
31	02696	Bearing	1			T	
32	02679	Shield	1			T	
33	01547	Collar	1			X	



## Component Wear Percentages

34	Housing		1				X
	50774	Mdl. – 50210					
	50775	Mdl. – 50211					
	50773	Mdl. – 50561					
	50772	Mdl. – 50570					
35	01469	Speed Regulator Assembly (include: 01024, 95730)	1			T	
36	01024	O-Ring	1				
37	95730	O-Ring	1				
38	01464	Seal	1			T	
39	01472	Tip-Valve	1			T	
40	01468	Spring	1			T	
41	01564	Air Controll Ring	1				X
42	95558	Retaining Ring	1			T	
43	01449	Valve Stem	1			T	
44	01448	Throttle Lever	1				X
	01462	Safety-Lock Lever (optional)	1				X
45	12132	Pin	1			T	
46	96584	Vacuume Hose – Self generated (Non-Conductive/Grey)	1			X	
	31937	Vacuum Hose – Central Vacuum (Conductive/Black)	1			X	
47	95711	Retaining Ring	1			T	
48	95438	O-Ring	1			X	
49	94532	Vacuum Adapter	1			X	
50	95375	O-Ring	1			X	
51	94526	Spacer	1				X
52	94523	Inlet Adapter	1				X
54	94521	Muffler Base	1			X	
55	94528	Silencer	1		T		
56	02295	Muffler Cap (includes: 31953)	1				X
57	31953	Wire	1				X
59	95601	Hose Cuff – Self - Generated Vac. (Non-conductive/Grey)	1			X	
	31098	Hose Cuff – Central Vacuum (Conductive/Black)	1			X	



### **Disassembly Instructions - 3" Right Angle Vacuum Disc Sanders**

#### Right Angle Disassembly:

1. Disconnect the tool from the air supply. Important: To prevent damage to the composite housing, hold the air inlet adapter securely with a wrench when removing the air fitting.
2. Remove the 51346 Pad.
3. Remove 97326 Clamp and shroud.
4. Use the 96461 Repair Collar to hold the 02031 Housing with 02035 Lock Nut facing up.
5. Use the 50971 Lock Ring Tool to remove the 02035 Lock Nut. Turn counterclockwise.
6. Remove the spindle with 54520 Bearing, gear and shims.
7. Use the 96346 Bearing Separator (2") and the 96232 Arbor Press (#2) to remove the bearing and gear from the spindle.
8. Use a 5/16" (8 mm) diameter flat-end drive punch to remove the 02041 Gear Oil Plate, 01041 Gear Oil Fitting and 02033 Needle Bearing.

Right Angle Disassembly Complete.

#### Motor Disassembly:

1. Use the 52296 Repair Collar to hold the composite housing in a vise with the angle housing pointing up.
2. Use a 34 mm or an adjustable wrench to remove the 01461 Lock Nut. Turn counterclockwise.
3. Pull the motor out of the composite housing.
4. Fasten the 96346 Bearing Separator around the 01476 Cylinder.
5. Place the bearing separator on the arbor press with the pinion pointing toward the floor.
6. Use a 3/16" (5 mm) diameter flat-end drive punch and the arbor press to push the rotor out of the 02696 Bearing. Use the 96210 Bearing Removal Tool to remove the 02696 Bearing from the rear bearing plate.
7. Fasten the rotor in a vise with bronze or aluminum with the pinion pointing up.
8. Use a wrench to remove the pinion from the rotor. Turn counterclockwise.
9. Push the 02649 Bearing out of the front bearing plate and remove the shims.
10. Remove the 01479 Spacer from the rotor.

Motor Disassembly Complete.

#### Valve Disassembly:

1. Use the 52296 Repair Collar to hold the composite housing in a vise with the 94523 Inlet Adapter pointing up.
2. Remove the inlet adapter and vacuum assembly.
3. Remove the 01468 Spring, 01472 Tip Valve, and 01464 Seal.
4. Refer to the exploded view to identify vacuum/muffler components and the sequence of disassembly.
5. Position the composite housing in the vise so that the throttle lever and the 12132 Pin are accessible. Use a 2.5 mm diameter drive punch to remove the pin and lever.
6. Use retaining ring pliers to remove the 95558 Retaining Ring and 01469 Speed Regulator.

Valve Disassembly Complete.

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

### **Assembly Instructions - 3" Right Angle Vacuum Disc Sanders**



## **Disassembly/Assembly Instructions**

1. Install the 01469 Speed Regulator Assembly and secure with the 95558 Retaining Ring.
  2. Use the 52296 Repair Collar to hold the composite housing in a vise with the inlet adapter pointing up.
  3. Install the 01449 Valve Stem into the speed regulator assembly. Line-up the hole in the valve stem with the air inlet in the housing.
  4. Install the 01464 Seal. Use needle nose pliers to install the 01472 Tip Valve and so that the metal pin fits through the hole of the 01449 Valve Stem.
  5. Install the 01468 Spring so that the smaller end fits against the back of the tip valve.
  6. Refer to the exploded view to identify vacuum/muffler components and the sequence of assembly.
  7. Apply a small amount of Loctite #567 (or equivalent) to the male thread of the inlet adapter and install the vacuum/muffler assembly. (Torque to 23 N•m/200 in. lbs.)
- Valve Body Assembly Complete.

### Motor Assembly:

1. Fasten the rotor in a vise with bronze or aluminum jaws with the spindle thread pointing up.
2. Install the 01479 Spacer onto the 02037 Rotor.
3. Install .003" (0.08 mm) shim thickness into the 01478 Front Bearing Plate.
4. Install the 02649 Bearing and the front bearing plate onto the rotor.
5. Install the pinion onto the rotor hand tight.
6. Use a .001" (~0.03 mm) thick feeler gauge to check the clearance between the rotor and the front bearing plate. Clearance should be .001" to .0015" (0.03-0.04mm). If necessary, adjust clearance by repeating steps 3-6 using different shim thickness.
7. Once the proper rotor/plate clearance is achieved, use a wrench to tighten the pinion. (Torque to 17N•m/150 in. lbs.)
8. Apply 95842 Dynabrade Air Lube 10W/NR (or equivalent) to the 01480 Vanes and install.
9. Use the RAISED OUTSIDE diameter of the 96242 Bearing Press Tool and the arbor press to install the 02696 Bearing into the 02676 Rear Bearing Plate.
10. Place the pinion on the table of the arbor press with the rear end of the rotor pointing up.
11. Install the 01476 Cylinder so that the air inlet lines-up with the air inlet in the 02676 Rear Bearing Plate.
12. Use the RAISED INSIDE diameter of the 96242 Bearing Press Tool against the inside race of the 02696 Bearing and install the rear bearing/plate onto the rotor with the arbor press. **IMPORTANT:** Carefully press the rear bearing/plate onto the rotor until it **JUST** touches the 01476 Cylinder. This will create a *snug fit* between the bearing plates and cylinder.
13. Apply a small amount of clean grease to the seal of the 02696 Rear Bearing and stick the 02679 Shield against the bearing.
14. Line-up air passages in the rear bearing plate an on the inside the composite housing.
15. Install the motor into the housing.
16. Apply a small amount of Loctite #243 (or equivalent) to the threads of the composite housing. Use the 96461 Repair Collar to hold the 02031 Housing in a vise. Use a 34mm, or an adjustable wrench to fasten the right angle housing, and the 01461 Lock Nut to the composite housing. (Torque to 34 N•m/300 in. lbs.)

Motor Assembly Complete.

### Right Angle Assembly:

1. Press the 01041 Gear Oil Fitting into the 02041 Gear Oil Plate.
2. Apply two drops of Loctite #680 (or equivalent) to the recessed area in the 02031 Housing and press the gear oil plate along with gear oil fitting into the housing.



## ***Disassembly/Assembly Instructions***

- (Allow 30 minutes for the adhesive to cure.)
3. Press the 02033 Needle Bearing into the housing.
  4. Position the 96239 Bearing Press Tool so that it rests against the INSIDE RACE of the 54520 Bearing and press the bearing onto the spindle.
  5. Line-up the hex shaped area of the gear and the spindle hex. Press the gear onto the spindle.
  6. Apply a small amount of Loctite #243 (or equivalent) to the LEFTHAND THREAD of the 02031 Housing. By hand, connect the 02031 Housing, the 01461 Lock Nut and the composite housing.
  7. Place the 52296 Repair Collar around the composite housing and fasten the tool in a vise so that the right angle housing is pointing up.
  8. Use a 34 mm or an adjustable wrench on the 01461 Lock Nut, while holding with one hand the right angle housing stationary. NOTE: The throttle lever can be positioned 360° to a desired location. Allow for additional rotation when tightening the lock nut. (Torque to 23 N•m/200 in. lbs.)
  9. Position the tool in the vise so that the opening in the right angle housing is facing up.
  10. Presoak wicks in the 95848 Gear Oil before installing them into the 02031 Housing. Install the top wick first followed by the bottom wick. Face the cut-off side of each wick toward the pinion gear.
  11. Install the 02029 Spindle into the right angle housing. Check for the proper backlash or fit between the teeth of the gears. Apply downward force on the spindle while rotating it back and forth. A slight amount of backlash or clearance should exist between the gear teeth. If the fit is tight, then add the required thickness of shim between the outer race of the 54520 Bearing and the bearing seat in the housing.
  12. Place the 01486 Felt Silencer into the 02035 Lock Ring. Apply a small amount of Loctite #567 (or equivalent) to the threads of the 02035 Lock Nut. Use the 50971 Lock Ring Wrench to install the lock nut. (Torque to 23 N•m/200 in. lbs.)
  13. Place the 50771 Shroud onto right angle housing and fasten the 97326 Clamp.
  14. Install 51346 Pad.
- Right Angle Assembly Complete.

Allow 30 minutes for adhesives to cure before operating tool.

**IMPORTANT:** With the throttle lever depressed, add 3 drops of Dynabrade Air Lube 95842 directly into air inlet. Without an accessory mounted, check spindle speed of the sander regularly with 90 PSIG (6.2 Bar) at tool inlet to ensure that the tool does not exceed the rated speed.

In accordance with EN 792, the no-load speed may not exceed the rated speed by more than 10%.

**ADD GEAR OIL:** After every 24 hours of operation, use the 95541 Push-Type Lube Gun to supply 2 plunges of the 95848 Gear Oil through the 01041 Gear Oil Fitting.