Parts Page Reorder No. PD08•34
Effective July, 2008

5" Vacuum Right Angle Sander

Air Tool Manual – Safety, Operation and Maintenance

SAVE THIS DOCUMENT, EDUCATE ALL PERSONNEL

Model	*Wheel Size*	*RPM*	*Spindle Thread*
52596	5"	12,000	5/8"-11



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⚠ 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 Standards 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

Practice safety requirements. Work alert, have proper attire, and do not operate tools under the influence of alcohol or drugs.





⚠ WARNING

Eye protection must be worn at all times, eye protection to conform to ANSI Z87.1.

⚠ WARNING

Ear protection to be worn when exposure to sound, exceeds the limits of applicable Federal, State or local statues, ordinances and/or regulations.





⚠ WARNING

Respiratory protection to be used when exposed to contaminants that exceed the applicable threshold limit values required by law.

⚠ 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.



⚠ WARNING

Some dust created by grinding, sanding, drilling, and other construction activities contain chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints
- Crystalline silica from bricks and cement and other masonry products
- Arsenic and chromium from chemically treated lumber

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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: 5" Vacuum Right Angle Sander is ideal for non-sparking material removal using abrasive discs with appropriate back-up pads.

Do Not Use Tool For Anything Other Than Its Intended Applications.
This power tool is not intended for use in potentially explosive atmospheres and is not insulated against contact with electrical power.

Training: Proper care, maintenance, and storage of your air tools will maximize their performance.

- Employer's Responsibility – Provide 5" Vacuum Right Angle Sander operators with safety instructions and training for safe use of tools and accessories.

Accessory Selection:

- Warning: DO NOT use cut-off wheels, saw blades, grinding wheels or flap discs. See tool intent for recommended accessory.
- Follow tool specifications chart before choosing size and type of accessory.
- Back-up Pad/Abrasive RPM (speed) rating MUST be approved for AT LEAST the tool RPM rating.
- Only use recommended fittings and air line sizes. Air supply hoses and air hose accessories must have a minimum working pressure of 150 PSIG (10 Bars, g) or 150 percent of the maximum pressure produced in the system, whichever is higher. (See Machine Specifications table on back cover.)

(continued on next page)

OPERATING INSTRUCTIONS

Warning: Always wear eye protection. Operator of tool is responsible for following: accepted 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 which has a potential hazard of cutting and severing.

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

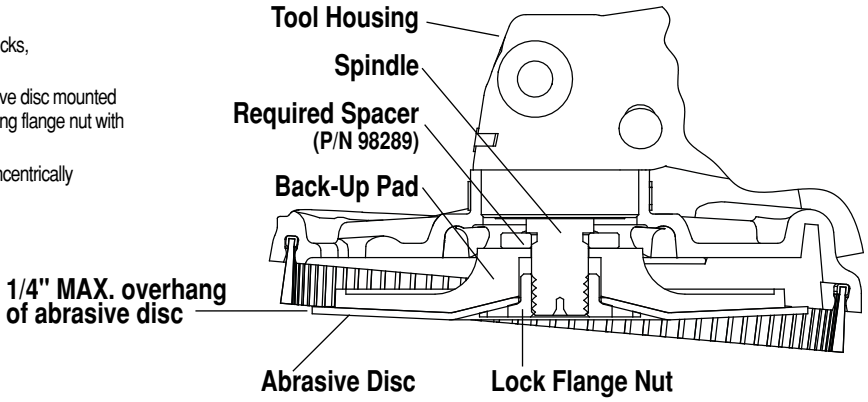
- Secure inlet bushing on air tool with a wrench before attempting to install the air fitting to avoid damaging housing assembly.
- BEFORE MOUNTING A BACK-UP PAD/ABRASIVE, after all tool repairs and whenever a sander is issued for use, check tool RPM (speed) with tachometer with air pressure set at 90 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.

Warning: Back-up pad speed rating must be approved for at least the tool RPM rating. Check accessory manufacturer for details on maximum operating speed or special mounting instructions.

Back-Up Pad/Abrasive Mounting

- Disconnect air source from the tool.
- Clean spindle and locking flange nut mounting surfaces. Inspect for nicks, cuts, sharp edges and thread wear.
- Install back-up pad onto spindle (ideal mounting is shown) with abrasive disc mounted and locking flange nut secured. Spindle end should be flush with locking flange nut with + or - 1/16". Spacers may be needed to achieve ideal mounting.
- Check mounting by rotating spindle, make certain abrasive disc is concentrically mounted and back-up pad is not excessively warped.

Side View



- Connect tool to air 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).**

Warning: After installing the back-up pad/abrasive, make sure that no one is in the unguarded plane before starting the sander. IN A PROTECTED AREA, test run the sander 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. Test sander at its free speed (RPM) in a protected area for at least one minute before use.

- DO NOT engage spindle lock while spindle is rotating.
- Make sure that work area is uncluttered, and visitors are at a safe range from the tools and debris.
- Air tools are not intended for use in potentially explosive atmospheres and are not insulated for contact with electric power sources.
- 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.
- Ensure that sparks and debris resulting from work does not create a hazard.
- Always be aware of bystanders in work areas.
- This tool has side exhaust, rotate muffler cover by hand to desired exhaust direction. Exhaust may contain lubricants, vane material, bearing grease, and other materials flushed through the tool.

Warning: Sanding certain materials can create explosive dust. It is the employers responsibility to notify the user of acceptable dust levels.

- Sanding can cause sparks which can cause fires or explosions. It is the users responsibility to make sure the work area is free of flammable materials.
- Use side handle provided to best control tool during sanding.

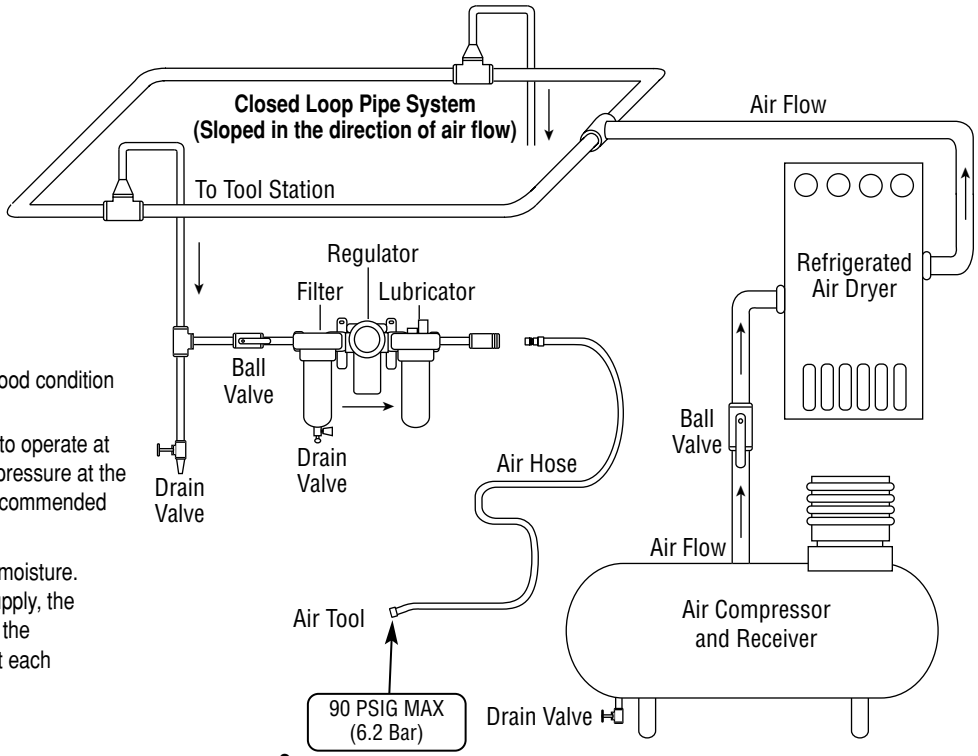
Report to your supervisor any condition of the tool, accessories, or operation you consider unsafe.

Air System

LUBRICATOR SETTING

1 DROP/MIN.

20 SCFM



- Check all connections and air hoses for good condition and proper installation.
- 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. To facilitate removing moisture from air supply, the installation of a refrigerated air dryer after the compressor and the use of drain valves at each tool station.

Maintenance Instructions

Important: To keep tool safe a Preventative Maintenance Program is required whenever portable power tools are used. The program shall include inspection of air supply lines, air line pressure, proper lubrication and repair of tools. Refer to ANSI B186.1 and EN 792 for additional maintenance information.

- Use only genuine Dynabrade replacement parts to insure quality. To order replacement parts, specify **Model#**, **Serial#** and **RPM** of your air tool.
- 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: **10681** Air Line Filter-Regulator-Lubricator — Provides accurate air pressure regulation, two-stage filtration of water contaminants and micro-mist lubrication of pneumatic components.
- **Lubricate wick system through the angle gear oil fitting with 2-3 plunges for every 24 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) Always prime pump to insure good flow before lubricating gears.
- Dynabrade recommends one drop of air lube per minute for each 20 SCFM (example: if the tool specification states 40 SCFM, set the drip rate on the filter-lubricator to 2 drops per minute). Dynabrade Air Lube (P/N **95842**: 1 pt 473 ml) is recommended.

Routine Preventative Maintenance:

- Check free speed of tool using a tachometer without abrasive accessory attached with 90 PSIG at inlet while tool is running. This governor controlled tool should be speed checked every 20 hours of use or weekly, whichever occurs more frequently. Always check tool speed after any maintenance or repair.
- Inspect pad backing for excessive wear, nicks, cracks and cuts at the pad edges. Do not use pads that show excessive wear. Check pad backing for concentricity.
- Visually inspect abrasive discs for nicks, cuts, tears at the edges. Abrasive disc with a curved shape indicates improper storage. Do not use abrasives that show these characteristics.

- 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 **96100**) 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. Employer 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 tool vibration before mounting abrasive wheel accessory.

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. When carrying tool keep hands away from throttle lever to avoid accidental startup.
- Protect abrasives accessories from exposure to water, solvents, high humidity, freezing temperature and extreme temperature changes.
- Store abrasive discs prior to use at 40-50% relative humidity and 60-80˚ F (15-27˚ C) to reduce curling.
- Store accessories in protective racks or compartments to prevent damage.

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.

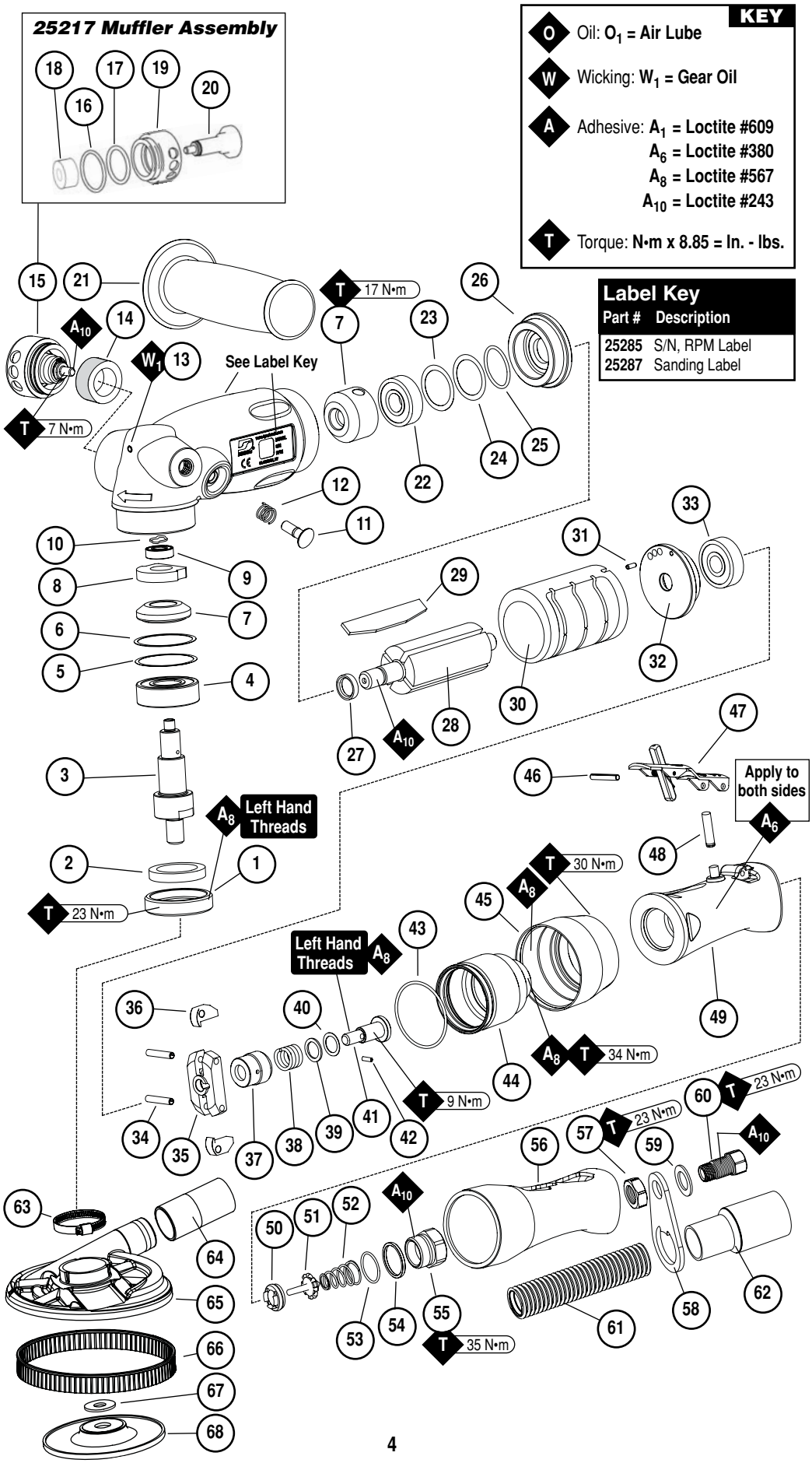
Lifetime Warranty

All Dynabrade portable pneumatic power tools are rigorously inspected and performance tested in our factory before shipping to our customers. If a Dynabrade tool develops a performance problem and an inherent defect is found during normal use and service, Dynabrade will warrant this tool against defects in workmanship and materials for the lifetime of the tool. Upon examination and review at our factory, Dynabrade shall confirm that the tool qualifies for warranty status, and will repair or replace the tool at no charge to the customer. Normally wearable parts and products are NOT covered under this warranty. Uncovered items include bearings, contact wheels, rotor blades, regulators, valve stems, levers, shrouds, guards, O-rings, seals, gaskets and other wearable parts. Dynabrade's warranty policy is contingent upon proper use of our tools in accordance with factory recommendations, instructions and safety practices. It shall not apply to equipment that has been subjected to misuse, negligence, accident or tampering in any way so as to affect its normal performance. To activate lifetime warranty, customer must register each tool at www.dynabrade.com. Dynabrade will not honor lifetime warranty on unregistered tools. A one-year warranty will be honored on all unregistered portable pneumatic power tools. Lifetime warranty applies only to portable pneumatic tools manufactured by Dynabrade, Inc. in the USA. Lifetime warranty applies only to the original tool owner; warranty is non-transferable.

Model:
52596

Vacuum Right Angle Sander
Complete Assembly

Index Key		
No.	**Part #**	**Description**
1	**25265**	Retainer
2	**53609**	Felt Seal
3	**25271**	Spindle
4	**01036**	Bearing
5	**98288**	Shim (as required)
6	**98287**	Shim (as required)
7	**25230**	Bevel Gear Set
8	**25264**	Wick
9	**02057**	Bearing
10	**98243**	Wave Spring
11	**25273**	Plunger Assembly (Incld 97156 Ring)
12	**98285**	Spring
13	**Housing**	(Includes: 01041 Gear Oil Fitting,25275 Bushing)
	50580	Model 52596
14	**25283**	Silencer
15	**25217**	Muffler Assembly
16	**98282**	O-Ring (2mm)
17	**98281**	O-Ring (2.4mm)
18	**25282**	Silencer
19	**25278**	Muffler Cover
20	**25281**	Muffler Stem Assembly
21	**53134**	Vibration Dampening Handle
22	**01007**	Bearing
23	**01294**	Shim (as required)
24	**01293**	Shim (as required)
25	**98242**	O-Ring
26	**25236**	Front Bearing Plate
27	**01010**	Spacer
28	**25233**	Rotor
29	**25234**	Vane (4/Pkg.)
30	**25235**	Cylinder
31	**96441**	Pin
32	**25237**	Rear Bearing Plate
33	**01206**	Bearing
34	**98279**	Pin (2)
35	**25290**	Governor Cage
36	**25291**	Governor Weight (2)
37	**25293**	Governor Valve
38	**25294**	Governor Spring
39	**25298**	Shim (.25 mm Thk.) (asReq)
40	**25299**	Shim (.13 mm Thk.) (asReq)
41	**25292**	Governor Spindle
42	**25295**	Pin
43	**66435**	O-Ring
44	**25256**	Governor Housing
45	**25257**	Cup Nut
46	**12132**	Pin
47	**01950**	HD Safety-Lock Lever
48	**25247**	Valve Stem Assembly (Incld 96443 O-Ring)
49	**25245**	Throttle Handle (Incld 25246 Bushing)
50	**51945**	Valve Seat
51	**25249**	Tip Valve
52	**25250**	Spring
53	**96442**	O-Ring
54	**51940**	Spacer
55	**25213**	Inlet Bushing (Incld 51938 Screen (2)
56	**25253**	Insulating Cover
57	**97206**	Nut
58	**50584**	Hose Holder
59	**95758**	Washer
60	**50581**	Vac. Hose Support Bushing
61	**31939**	Vacuum Hose
62	**31905**	Swivel Hose Cuff
63	**97029**	Hose Clamp
64	**31909**	Hose Cuff
65	**52745**	Vac Shroud
66	**50582**	Brush
67	**98289**	Spacer
68	**51150**	5" Back-Up Pad (Incld 98289 Spacer)



Disassembly/Assembly Instructions - Vacuum Right Angle Sander

Important: The Manufacturing Warranty is void if the tool is disassembled before the warranty expires by anyone other than a Dynabrade® Approved Repair Technician.
Notice: A **96100** Motor Tune-Up Kit is available. Also, the special repair tooling referred to in these instructions can be ordered through your Dynabrade® Distributor. Please refer to this tool manual for correct part number identification.

Important: Always follow these steps before servicing any part of this air tool.

1. Shut off the air supply, and depress throttle lever to dissipate the remaining air. Carefully disconnect the tool from the air supply hose.
   Note: Use a wrench to hold the air tool inlet bushing stationary when removing the air supply connection.
2. Remove any abrasive product, flanging, shroud, vacuum hose, hose holder, bushing and side handle.

Motor Disassembly:

1. Use a 3mm drive punch to remove the throttle lever.
2. Roll back front edge of **25253** Insulating Cover just enough to expose wrench flats on **25257** Cup Nut.
3. Place padding around the housing and carefully hold the housing stationary in a vise. Use an adjustable wrench or **98283** Open End Wrench (***sold separately***) to loosen the **25257** Cup Nut. Turn counterclockwise. **Note:** Applying heat to cup nut will help loosen adhesive.
4. Carefully pull motor assembly out of the housing.
5. Hold pinion gear in a vise with aluminum or bronze jaws. Use an adjustable wrench or **95281** Open End Wrench (***sold separately***) to remove the governor assembly. **LEFT HAND THREAD** Turn clockwise.
6. Fasten **96346** 2" Bearing Separator around the portion of **25235** Cylinder that is closest to **25237** Rear Bearing Plate. Place the bearing separator motor on the table of the **96232** #2 Arbor Press with pinion gear pointing downward. Use a 3/16" or 4mm diameter flat end drive punch push rotor out of the **01206** Bearing.
7. Remove the vanes from rotor and **01206** Bearing from bearing plate.
8. Fasten the vane slot portion of rotor in a vise with aluminum or bronze jaws so that the pinion gear is pointing up.
9. Use a hook/pin spanner wrench unthread pinion gear from rotor. Turn counterclockwise.
10. Remove the front bearing plate, shims and **01010** Spacer.

Motor Disassembly Complete.

Spindle/Gear Disassembly:

1. Place padding around the housing and carefully hold the housing stationary in a vise with the spindle pointing up. Use the **97782** Pin Wrench (***sold separately***) or an adjustable pin wrench to remove **25265** Retainer. **LEFT HAND THREAD** Turn clockwise.
2. Remove **53609** Felt Seal from spindle or retainer.
3. Pull spindle and gear assembly out of the housing.
4. Fasten the **96346** 2" Bearing Separator under **02057** Bearing and press spindle through bearing. Remove **25264** Wick. Remove **98243** Wave Spring from the right angle housing.
5. Fasten the **96346** 2" Bearing Separator between **01036** Bearing and spiral bevel gear. Place the bearing separator along with the spiral bevel gear assembly on the table of the **96232** #2 Arbor Press so that the spindle thread is pointing down. Push the gear off the spindle.
6. Remove the **01036** Bearing the same way.
7. Remove the housing from vise.

Spindle Disassembly Complete.

Spindle Lock Disassembly:

1. Apply a small amount of the Dynabrade Air Lube 10W/NR (P/N **95842** or equivalent) around the **25273** Plunger Assembly.
2. Place padding around the housing and carefully hold the housing stationary in a vise with the plunger assembly facing up.
3. Use two flat blade screwdrivers to pry the plunger assembly out of the **25275** Spindle Lock Bushing.
4. Remove the **98285** Spring and the **97156** Ring from the plunger.

Spindle Lock Disassembly Complete.

Valve Disassembly:

1. Secure **25245** Throttle Handle in a vise using wrench flats so that the **25213** Inlet Bushing pointing upward.
2. Use an adjustable wrench, unthread **25213** Inlet Bushing. Turn counterclockwise.
3. Use needle nose pliers, pull **25249** Tip Valve from handle.
4. Use a small screwdriver to remove the **96443** O-Ring from the valve stem and remove the valve stem.
5. Position **25245** Throttle Handle in the vise with **25257** Cup Nut and **25256** Governor Housing pointing up. Use a 10 mm hex key to remove the **25256** and **25257**. Turn counterclockwise. **Note**: Applying heat to throttle handle will help loosen adhesive bond.
6. Push the **51945** Valve Seat out of the **25245** Throttle Handle.

Valve Body Disassembly Complete.

Important: Clean and inspect all parts for wear before assembling. Note: Follow all lubricant, adhesive, and torque specifications.

Valve Assembly:

1. Install **96443** O-Ring onto **25247** Valve Stem. Apply Dynabrade Air Lube to **96443** O-Ring and carefully install the valve stem and o-ring assembly into the throttle handle. **Note**: Rotating the valve stem while inserting prevents damage to the o-ring
2. Apply several drops of the Dynabrade Air Lube 10W/NR (P/N **95842** or equivalent) to valve seat pocket wall on the inside of the **25245** Throttle Handle before inserting the **51945** Valve Seat. Install the **51945** Valve Seat by aligning the 3 male prongs of the valve seat with three slots of the valve seat pocket in the throttle handle. **Note:** Use an arbor press and the **96241** Bearing Press Tool to support the valve seat and press it into the valve seat pocket. Make certain that the valve seat lays flat.
3. Use needle nose pliers install **25249** Tip Valve into the throttle handle.
4. Install **51940** Spacer onto **25213** Inlet Bushing, followed by the **96442** O-Ring. Install the larger end of the **25250** Spring into the inlet bushing. The smaller end of the spring fits against the back of the tip valve.
5. Apply a small amount of the Loctite® #243 (or equivalent) to the external threads of the **25213** Inlet Bushing and install it onto the throttle handle. Secure throttle handle in a vise using wrench flats. (Torque to 35N·m/310 lbs. in.)
6. Position the throttle handle in vise with the inlet bushing pointing downward.
7. Install the **66435** O-Ring onto the **25256** Governor Housing. Apply some Dynabrade Air Lube to the o-ring. Insert the governor housing through the **25257** Cup Nut. Apply a small amount of the Loctite® #567 (or equivalent) to the external threads of the governor housing. Use a 10 mm hex key to fasten the governor housing and cup nut onto the throttle handle. Turn clockwise. (Torque to 34N·m/300 lbs. in.) **Note:** The position of the throttle lever must be secured in the 9:00 position to best protect the operator from unintentional starts.
8. Apply a few drops of Loctite® #380 (or equivalent) to both sides of the throttle handle (as shown). Install the **25253** Insulating Cover and the **01462** Throttle Lever onto the throttle handle.

Valve Assembly Complete.

(continued on next page)

Disassembly/Assembly Instructions - Vacuum Right Angle Sander (cont.)

Spindle Lock Assembly:

1. Install a new **97156** Ring onto the plunger and apply a small amount of the Dynabrade Air Lube 10W/NR (P/N **95842** or equivalent) to the o-ring and plunger.
2. Install **98285** Spring onto the housing bushing and insert the **25273** Plunger Assembly through the spring.
3. Install the plunger assembly into the spindle lock bushing. **Note**: Rotating the plunger while inserting prevents damage to the o-ring.

Spindle Lock Assembly Complete.

Motor Assembly:

1. Install **01010** Spacer onto the rotor front mandrel.
2. Select .003" (.08mm) thickness shims from the **01121** Shim Pack and install these into the **25236** Front Bearing Plate.
3. Install **98242** O-Ring into front bearing plate groove and install **01007** Bearing, into the front bearing plate.
4. Position the rotor in a vise with aluminum or bronze jaws so that the rotor spindle is pointing up. Install the front bearing/plate onto the rotor.
5. Apply a small amount of the Loctite® #243 (or equivalent) to the external threads on the rotor stem and install the pinion gear. (Torque to 17N·m/150 lbs. in.) Using a hook/pin spanner wrench. Remove the assembly from the vise.
6. Use a .001" (0.3mm) thick feeler gauge to check the clearance between the front bearing plate and the face of the rotor. The clearance should be .001"-.0015" (0.3-0.4mm). **Note:** If the clearance needs adjustment repeat steps 2-6 adding or removing shims as required.
7. Lubricate **25234** Vanes (4) with the **95842** Dynabrade Air Lube 10W/NR (or equivalent) and install these into the rotor.
8. Install **25235** Cylinder over the rotor so that the air inlet opening of the cylinder will line up with the air inlet opening on the **25237** Rear Bearing Plate.
9. Install **01206** Bearing into **25237** Rear Bearing Plate.
10. Use the raised inner diameter of **96244** Bearing Press Tool and the arbor press to install the rear bearing plate onto the rotor. **Note:** Carefully press the bearing/plate down until it just touches the cylinder. This will establish a snug fit between the bearing plates and the cylinder.
11. Fasten the pinion gear in a vise with aluminum or bronze jaws so that the rear bearing/plate pointing up.
12. Apply a small amount of the Loctite® #567 (or equivalent) to the external threads of governor assembly. Install it onto the rotor using an 19 mm crowfoot and torque wrench. **LEFT HAND THREAD** Turn counterclockwise. (Torque to 9N·m/80 lbs. in.)
13. Carefully slide the motor assembly into the housing.
14. Place padding around the housing and carefully hold the housing stationary in a vise. Apply a small amount of the Loctite® #567 (or equivalent) to housing external threads. Use an adjustable wrench tighten **25257** Cup Nut onto housing. Turn clockwise. (Torque to 30N·m/265 lbs. in.)

Important: Allow 30 minutes for the adhesives to cure before operating the tool.
Run the tool to make sure that the air motor is functioning properly before installing the right angle gears. Motor Assembly Complete.

Spindle/Gear Assembly:

1. Position the spindle in the arbor press so that the threaded end is pointing down.
2. Use a 19/32" deep well socket as a press tool, install the **01036** Bearing onto the spindle and against the step.
3. Use a 19/32" deep well socket as a press tool and install the **25241** Bevel Pinion onto the spindle.
4. Prepare the **25264** Wick by soaking in **95848** Gear Oil and then install the wick onto the spindle.
5. Press **02057** Bearing using **96243** Press Tool (***sold separately***) onto spindle until the spindle is flush with the bearing top.
6. Place padding around the housing and carefully hold the housing stationary in a vise with the right angle spindle opening facing up.

Important: Follow these steps to adjust the fit or "backlash" of the spiral bevel gear/pinion gear.

7. Install the spindle assembly into the housing align wick shape to housing contour. Mesh bevel and pinion gears together.
8. Apply a small amount of downward force on the spindle and rotate the spindle 360˚. The rotation should be smooth without any tight feel or binding of the gear teeth. Next, rotate the spindle forward and backward to check the amount of backlash (free movement between the gear teeth). The correct fit should be minimal backlash without any binding of the gear teeth. Add or remove shims to adjust the gear "backlash".
9. Place the **53609** Felt Seal into the **25265** Retainer recess bore.
10. Apply a small amount of the Loctite® #567 (or equivalent) to the threads of the retainer and use the **97782** Pin wrench to install the retainer onto the housing. **LEFT HAND THREAD** Turn counterclockwise. (Torque to 23N·m/203 lbs. in.)
11. Re-check the fit of the gears by hand before connecting the tool to the air supply. The correct fit should be minimal backlash without any binding of the gear teeth. Add or remove shims to adjust the gear fit if necessary.
12. Use the **95541** Lubricant Gun to apply the **95848** Gear Oil Lubricant required for the lubricating wick prime the plunger before adding gear oil to housing. Inject three full plunges of the gear oil into the **01041** Gear Oil Fitting on the front of housing. **Note:** Inject three full plunges of gear oil into the lubricant fitting after operating the tool every 24-hour interval of use.

Right Angle Assembly Complete:

Muffler Assembly:

1. Install **25282** Silencer (Cross section size: 7.5 mm) up and inside recess diameter of **25278** Muffler Cover.
2. Install the **98281** O-Ring (Cross section size: 2.4 mm) into the inside groove of the muffler cover.
3. Install the **98282** O-Ring (Cross section size: 2.0 mm) into the outside groove of the muffler cover.
4. Install **25278** Muffler Cover (the side with the smaller hole) onto **25281** Muffler Stem Assembly.
5. Install **25283** Silencer (Cross section size: 13 mm) into housing cavity.
6. Apply a small amount of the Loctite® #243 (or equivalent) to the external threads of the **25281** Muffler Stem Assembly. Install the **25217** Muffler Assembly onto the housing. Rotate **25281** Muffler Stem Assembly until slot aligns with housing raised boss. Thread socket head cap screw into housing using a 5/32" hex key (Torque to 7N·m/60 lbs. in.).

Muffler Assembly Complete.

Final Assembly:

Important: Allow 30 minutes for the adhesives to cure before operating the tool. Install and properly position all shrouding and side handle. Before installing mounting flanges or any abrasive product, the air tool must be tested for proper operation. Follow these steps to verify the correct rated operating speed of the tool.

1. Place **52745** Shroud onto housing and fasten **97029** Clamp.
2. Pre-assemble **95758** Washer, **50584** Hose holder and **97206** Nut onto **50581** Hose Holder Bushing and tighten assembly onto tool inlet bushing **25213**.
3. Install **31909** Cuff onto shroud with **31939** Hose and **31905** Swivel Cuff through **50584** Hose Holder and adjust to proper angle. Then tighten **97206** Nut while holding **50581** Bushing.
4. Supply 3 drops of **95482** Dynabrade Air Lube 10W/NR (or equivalent) into the air inlet bushing of the tool while the throttle lever is depressed. Allowing the oil to flow into the air motor.
5. Release the throttle lever.
6. With the air supply valve in the **OFF** position, carefully connect the tool to the air supply hose. **Note:** Use a wrench to hold the air inlet bushing on the tool stationary when installing the air supply connection.
7. Once the tool is connected to the air supply, turn the supply valve to the ON position. Run the tool and use a tachometer to verify the rated operating speed (RPM) of the tool. The tool should operate within 5% of the maximum rated RPM. The tool RPM must never exceed the maximum rated RPM with the operating air supply pressure reading 90 PSIG (6.2 bar g) at the air inlet of the tool. To adjust free speed add or remove shims. Adding shims will increase the speed, removing shims will reduce the tool free speed. Once the correct rated operating speed for the tool is verified, disconnect the tool from the air supply and install the proper flanging and abrasive product.

Final Assembly Complete. Tool Assembly Complete.

Preventative Maintenance Schedule

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.

LEGEND	
T	Included in Tune-Up Kit
X	Type of wear, no other comments apply.
L	Easily lost. Care during assembly/disassembly.
D	Easily damaged during assembly/disassembly.
R	Replace each time tool is disassembled.



96100 – Motor Tune-Up Kit

Parts Common to all Models:

Index #	Part Number	Description	Number Required	High Wear 100%	Medium Wear 70%	Low Wear 30%	Non-Wear 10%
1	**25265**	Retainer	1				**X**
2	**53609**	Felt Seal	1		**T**		
3	**25271**	Spindle	1				**X**
4	**01036**	Bearing	1		**T**		
5	**98288**	Shim	1		**T**		
6	**98287**	Shim	1		**T**		
7	**25230**	Bevel Gear Set	1			**X**	
8	**25264**	Wick	1		**T**		
9	**02057**	Bearing	1		**T**		
10	**98243**	Wave Spring	1			**T**	
11	**25273**	Plunger Assembly	1			**T**	
12	**98285**	Spring	1				**X**
13	**50580**	Housing	1				**X**
14	**25283**	Silencer	1		**T**		
15	**25217**	Muffler Assembly	1				**X**
16	**98282**	O-Ring	1		**T**		
17	**98281**	O-Ring	1		**T**		
18	**25282**	Silencer	1		**T**		
19	**25278**	Muffler Cover	1				**X**
20	**25281**	Muffler Stem Assembly	1				**X**
21	**53134**	Vibration Dampening Handle	1				**X**
22	**01007**	Bearing	1		**T**		
23	**01294**	Shim	1		**T**		
24	**01293**	Shim	1		**T**		
25	**98242**	O-Ring	1		**T**		
26	**25236**	Front Bearing Plate	1		**X**		
27	**01010**	Spacer	1			**X**	
28	**25233**	Rotor	1				**X**
29	**25234**	Vane (4/pkg.)	1	**T**			
30	**25235**	Cylinder	1			**X**	
31	**96411**	Pin	1				**X**
32	**25237**	Rear Bearing Plate	1			**X**	
33	**01206**	Bearing	1		**T**		
34	**98279**	Pin	2		**X**		
35	**25290**	Governor Cage	1			**X**	
36	**25291**	Governor Weight	2			**X**	
37	**25293**	Governor Valve	1			**X**	
38	**25294**	Governor Spring	1			**X**	
39	**25298**	Shim	1			**X**	
40	**25299**	Shim	1			**X**	
41	**25292**	Governor Spindle	1			**X**	
42	**25295**	Pin	1			**X**	
43	**66435**	O-Ring	1			**T**	
44	**25256**	Governor Housing	1			**X**	
45	**25257**	Cup Nut	1			**X**	
46	**12132**	Pin	1		**T**		
47	**01462**	Safety-Lock Lever	1			**X**	
48	**25247**	Valve Stem Assembly	1		**T**		
49	**25245**	Throttle Handle	1			**X**	
50	**51945**	Valve Seat	1			**T**	
51	**25249**	Tip Valve	1			**T**	
52	**25250**	Spring	1			**T**	
53	**96442**	O-Ring	1		**T**		
54	**51940**	Spacer	1			**X**	
55	**25213**	Inlet Bushing	1				**X**
56	**25253**	Insulating Cover	1			**X**	
57	**97206**	Nut	1			**X**	
58	**50584**	Hose Holder	1			**X**	
59	**95758**	Washer	1				**X**
60	**50581**	Vac. Hose Support Bushing	1				**X**
61	**31939**	Vacuum Hose	1			**X**	
62	**31905**	Swivel Hose Cuff	1			**X**	
63	**97029**	Hose Clamp	1			**X**	
64	**31909**	Hose Cuff	1			**X**	
65	**52745**	Vac Shroud	1		**X**		
66	**50582**	Brush	1		**X**		

Optional Accessories

FIND THE MOST CURRENT OFFERING OF SUPPORT DOCUMENTS AND ACCESSORIES @ WWW.DYNABRADE.COM



Dynaswivel®

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

95461 3/8" NPT.



Dynabrade Angle Gear Oil

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

95848: 2.5 oz. tube

95541: Gear Oil Gun



Male Plug - 3/8" NPT

- Provides up to twice the air flow compared to standard plug design.
- Plug has "ported" design to prevent "starving" of the air tool.

98263: 3/8" Body

96005: 1/4" Body



96100 Motor Tune-Up Kit

- Includes assorted parts to help maintain and repair motor.

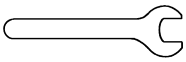


Dynabrade Air Lube

- Formulated for pneumatic equipment.
- Absorbs up to 10% of its weight in water.

95842: 1pt. (473 ml)

95843: 1gal. (3.8 L)



Wrenches

98283 - Open End (1-5/8")
95281 - Open End (19mm)
95049 - Hex Key (3/16")

Additional Repair Tools (Not shown)

96244 - Bearing Press Tool
96243 - Bearing Press Tool
96346 - Bearing Separator
96208 - Repair Collar

Machine Specifications

Model Number	Motor hp (W)	Motor RPM	Sound Level	Maximum Air Flow SCFM (LPM)	Spindle Thread	Air Pressure PSIG (Bars)	Weight Pound (kg)	Length Inch (mm)	Height Inch (mm)
52596	1.3 (969)	12,000	80 dB(A)	42 (1189)	5/8-11" male	90 (6.2)	5.5 (2.5)	16-1/8 (410)	3-7/8 (101)

Additional Specifications: Air Inlet Thread 3/8" NPT • Hose I.D. 3/8" (10mm)
Sound Level is the pressure measurement according to the method outlined in ISO regulation ISO-15744

Special Greasing Instructions



- **Lubricate wick system through the angle gear oil fitting with 2-3 plunges for every 24 hours of use, to achieve maximum gear life. Prime pump to insure good oil flow.**

Important: Use only the recommended angle gear oil for the wick system.
Do not contaminate the wick with any other oil or grease product. Insure that all 3 plunges of oil are injected through the fitting.

(Order **95848** Gear Oil and **95541** Gun)

Reference Contact Information

1. **American National Standards Institute – ANSI**
   25 West 43rd Street
   Forth Floor
   New York, NY 10036
   Tel: 1 (212) 642-4900
   Fax: 1 (212) 398-0023

2. **Government Printing Office – GPO**
   Superintendent of Documents
   Attn. New Orders
   P.O. Box 371954
   Pittsburgh, PA 15250-7954
   Tel: 1 (202) 512-1803

3. **Power Tool Institute, Inc.**
   P.O. Box 818
   Yachata, Oregon 97498-0818
   Tel: 1 (503) 547-3185
   Fax: 1 (503) 547-3539

4. **European Committee for Standardization**
   Rue de Stassart 36
   B - 1050 Brussels, Belgium

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