



Medium Sander

Pneumatic, 4" & 4.5"



Hand-Held Scarifiers



Needleguns



Walk-Behind Scarifiers



Impact Tools



Sanders



Specialty Tools



Industrial Vacuums



Configurations*

Part	Description	DC ¹	BUP ²	ASAC ³	Accessories/Remarks
150.018	Sander motor	none	none	none	
150.319	4" Sander	B	RL	CA, CD	
150.317	4" Sanding system	B	RL	CA, CD	
150.310	4" Sander	R	RL	CA, CD	
150.316	4" Sanding system	R	RL	CA, CD	Carry case & assorted CA & CD
150.210	4.5" Sander	R	HL	CD	
150.219	4.5" Sander	R	CN	CA	
150.217	4.5" Sanding system	R	HL	CD	Carry case & assorted CD

Abbreviations

¹ DC – Dust Collector	² BUP – Backup Pad	³ ASAC – Abrasives Supported as Configured
B – Bullnose	RL – ROLOC	CA – Coated Abrasive
R – Round	CN – Center Nut	CD – Conditioning Disc
	HL – Hook & Loop	DC – Diamond Cup

*Notes:

- All configurations use the **E-cup adapter** and new **1.6" deep shroud**. As a result, all depth setup data is new in this manual.
- See **Chapter 6. Abrasive Depth within Dust Collector** for depth setup information.

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1.0 Introduction

The Desco 4" and 4.5" sander is a quality power tool available with highly effective dust collection. The tool is lightweight and affords the user maximum ease and efficiency in a variety of applications. As with any product of a quality manufacture, service life largely depends on correct handling. These instructions are prepared to help you obtain maximum safety and performance at all times.

1.1 Main Applications

- De-slugging welds
- Stripping paint
- Cleaning castings
- Removing rust & corrosion
- Feathering Edges

1.2 Technical Specifications

Air Required	90 psi @ 18 cfm
Air Inlet	1/4" NPT
Weight	4 lbs
Length	9"
Speed, no load	12,000rpm
Spindle Size	5/8"-11

1.3 Important Safety Information

Read and understand all of the safety precautions, warnings and operating instructions in the instruction manual before operating or maintaining this power tool.

Most accidents that result from power tool operation and maintenance are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing a potentially hazardous situation before it occurs, and by observing appropriate safety procedures

Basic safety precautions are outlined in the Safety section of this instruction manual and in the section which contain the operation and maintenance instructions.

Hazards that must be avoided to prevent bodily injury or machine damage are identified by warnings on the power tool and in this instruction manual.



2.0 Basic Safety Rules



WARNING Read and understand all instructions

Failure to follow all instructions listed below may result in damage to the tool and/or serious personal injury.

2.1 Work Area

1. **Keep work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres,** such as in the presence of flammable liquids, gasses, or dust. Power tools create sparks which may ignite dust or fumes.
3. **Keep bystanders away** while operating a power tool.

2.2 Personal Safety

1. **Stay alert,** watch what you are doing and use common sense when operating a power tool. Do not operate tool when tired or substance impaired.
2. **Dress properly.** Do not wear loose clothing or jewelry. Contain long hair. Keep hair, clothing and hands away from moving parts.
3. **Use safety equipment.** Always wear eye protection. Other precautions may be required depending on the situation. These include: ear protection (ear plugs) vibration protection (gloves), steel toe shoes or hard hats.
4. **Avoid accidental starting.** Be sure the switch is off before attaching to power source.
5. **Do not overreach.** Keep proper footing and balance at all times.

2.3 Tool Use and Care

1. **Secure the work.** Use clamps or other securing method to firmly hold work to a stable platform. Do not attempt to hold work in one hand and operate the tool with the other hand.
2. **Do not force tool.** Apply light hold down pressure and let the tool do the work. Use the correct tool for your application.
3. **Do not tape trigger closed** to fashion a trigger lock. If you drop or otherwise loose control of the tool, it will continue to run and may cause dangerous results.
4. **Disconnect from power source before making adjustments** or changing accessories. Failure to disconnect may result in injury if the tool were to accidentally start while adjusting.
5. **Store tools out of reach of untrained persons.** Tools are dangerous in the hands of untrained users.
6. **Maintain tools with care.** Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.
7. **Check for misaligned or binding of moving parts,** breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.

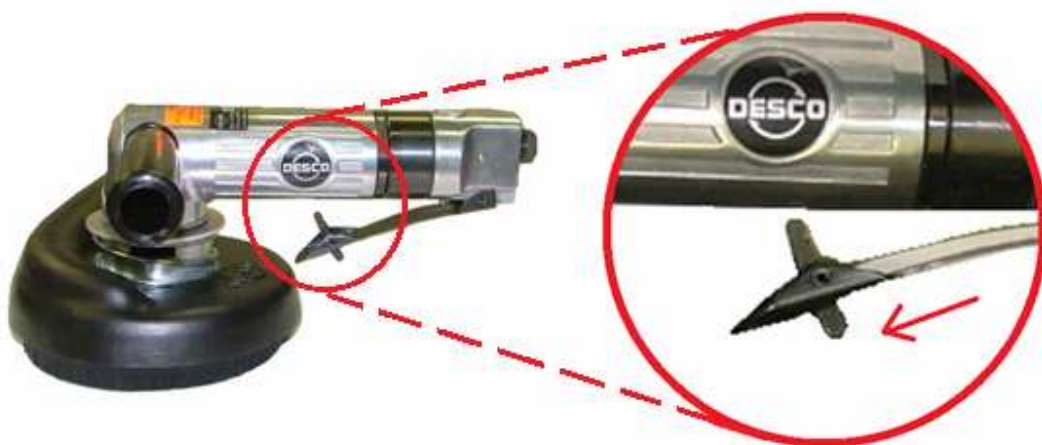
3.0 Operation

3.1 Prior to Operation

- 1) **Check your work environment** – Ensure the following before operation:
 - No flammable gas or liquid at worksite.
 - Work piece secured to prevent unwanted movement
 - Area cleared of children or unauthorized personnel.
- 2) **Observe abrasive speed rating** – Use only abrasives rated to run at 12,000 rpm or greater.
- 3) **Check air supply**
 - *Air Pressure and Volume* – 80-90 PSI air pressure at a minimum of 14 CFM is recommended for the most efficient performance. Air pressure that is too high will shorten the tool's life.
 - *Dry and Clean Air* – For proper performance and tool life, it's critical to provide clean, dry air to tool. If moisture is present, utilize filter/dryer at air station or between compressor and air hook-up.
 - *Air Hose and Fittings* – Insure hoses and fittings are in good condition with no leaks in fittings or hose. Due to static pressure drop with increased hose length, ½" or ¾" hoses are recommended whenever exceeding 50 feet in length. Larger ½" body fittings are also recommended as they allow more airflow and are less restrictive.

3.2 Grinder Operation

- 1) **Hold the grinder firmly with both hands.** One hand on the tool body handle and the other on the side handle.
- 2) **Switch Operation** – To switch is operated by a throttle lever. Pull the lever to run and release the lever to stop. A lock-out safety feature is mounted on the lever to prevent accidental starting. To override the lock-out, push forward as indicated by the arrow below.



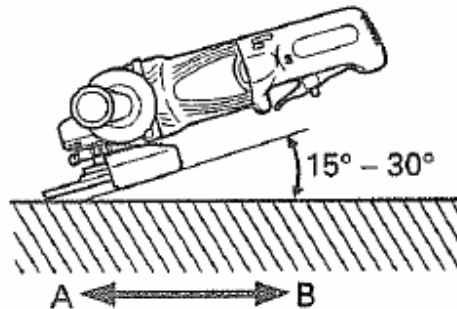
- 3) **Use light grinding pressure** – There is no need to press hard when grinding. Usually the grinder's own weight is sufficient to allow the required light contact with the surface to be grinded. Let the tool do the work.



WARNING: Do not press the grinder forcibly against the surface to be ground. Heavy pressure can result in wheel breakage and serious injury. It can also damage the surface being ground or damage the grinder's motor.

- 4) **Use proper grinding angle and motion:**

- Grind only with the wheel's edge by lifting the grinder 15° to 30° as shown below.
- Move the grinder in the proper direction. When using a new abrasive wheel in direction A, the wheel edge may cut into the work piece. In this case, grind in direction B. Once the wheel edge is worn, the work piece can be ground in both directions.



3.3 Tool Stowage

Avoid storing tools in locations subject to high humidity. If tool is stored in such environment over extended duration without proper lubrication, residual internal moisture will result in corrosion. After operation and before storing, always wipe down tool to make sure it is free of grease, dirt and grime. Immediately following, place 2 drops of oil in tool air inlet and run motor for 1 to 2 seconds to spread lubrication throughout motor.

4.0 Inspection and Preventative Maintenance Schedule

Interval	Item	Maintenance Procedure
Daily	Lubrication	Always use factory in-line filter lubricator. Fill reservoir after each use or after 8 hours of operation with pneumatic tool oil. Insert 3-4 drops of oil in tool air inlet before storing.
Daily	Guard Bolts and Fasteners	Make sure all bolts and fasteners are properly tightened.
Daily	Double Safety Lock-off Lever	Check the "ON/OFF" handle to make sure double lock-off lever is operating properly. Replace if broken.
Daily	Hoses	If leaks are discovered, hose should be replaced. If leaks are around fittings, hose may be repairable.
30 Days	Filter	Replace when cartridge is dirty or does not allow air to pass through freely.
30-60 Days	Air Motor: Cylinder	Examine ID of cylinder for rough circular grooves. If grooves are in excess of .005" deep, replace cylinder. Minor scoring and rust can be removed with a fly-bur tool.
30-60 Days	Rotor	Examine the spline or gear teeth at the driving end of the rotor. If they have become so worn that a step can be seen next to mating surfaces, the rotor should be replaced.
30-60 Days	Bevel Gears	Grease air motor bevel gears after every 250 hours of operation.
30-60 Days	Endplates	Examine both the front and rear endplates for wear. If the face shows wear greater than a depth .005", the endplates should be replaced.
30-60 Days	Bearings	Hold the inner race and rotate the outer race of the bearing by hand. If rough movement or substantial play are detected, replace bearing.
30-60 Days	Rotor Blades	Compare the width of an old rotor blade with the width of a new blade. If the old blades show 20% or more wear, they should be replaced.
30-60 Days	O-Rings	If o-rings become hard or cracked, they should be replaced. To prevent drying out, always coat o-rings with lubricant such as petroleum jelly before installation.

5.0 Changing Abrasives

Changing abrasives is a simple procedure as described below. However, when you change abrasive type, additional setup is often required. For example, if you change from coated abrasives to conditioning discs, you will also need to change the backup pad and shaft extension. For more information on this topic, see *Backup Pad and Shaft Extension Usage* later in this document.

5.1 Changing Coated Abrasives

- 1) Disconnect tool from power source.
- 2) Tools required are a *spindle wrench* and *spanner wrench*.



Spindle Wrench
(For locking Spindle)



Spanner Wrench
(For removing Center Nut)

- 3) Lock the spindle. Locate the spindle wrench access port and insert the spindle wrench. Rotate disc by hand until spindle locks. Be sure wrench is fully inserted into slot before proceeding to remove center nut.



Access Port for Spindle Lock Wrench



Insert Wrench into Access Port

- 4) Remove center nut. While holding the spindle locked with the spindle wrench, loosen the center nut with the spanner wrench.



- 5) Change abrasive. Then reverse process to re-install the center nut.

5.2 Changing Diamond Cup Discs

- 1) **Disconnect tool** from power source.
- 2) **Lock the spindle.** Locate the spindle lock wrench access port and insert the spindle wrench. Rotate disc by hand until spindle locks. Be sure wrench is fully inserted into slot before proceeding to remove diamond disc.



Access Port for Spindle Lock Wrench



Insert Wrench into Access Port

- 3) Remove diamond disc by turning counter clockwise by hand while holding the spindle locked with the spindle wrench.

5.3 Removing Tight Diamond Cup Discs

After a long hard use, the diamond cup may become too tight to remove with the standard procedure described in section 5.2.

- 1) **Disconnect tool** from power source.
- 2) **Lock the spindle** as shown in section 5.2.2.
- 3) **Break contact.** Lay the tool on its side on a suitable bench. You will need a hammer and drift punch. Place the punch on a hole as shown and strike sharply with hammer. Repeat until contact is broken.



5.4 Removing Stuck Diamond Cup Discs

When the procedure in section 5.3 fails to remove the disc, the disc is stuck and the sander needs to be taken apart to remove the diamond disc.

- 1) **Disconnect tool** from power source.
- 2) **Lock the spindle** as shown in section 5.2.2.
- 3) **Remove center nut & disc.** Remove center nut using a 1-3/16" socket. Then remove diamond cup from spindle adapter.



Note: One of two predictable outcomes will result from the above procedure:

- a) *Cup wheel intact* – If the cup wheel comes off complete, you are finished.
 - b) *Cup wheel separates* – If the cup wheel separates as pictured above leaving a portion of the wheel remain on the spindle, proceed to step 4.
- 4) **Remove dust shroud.** Using a 5/32" Allen wrench, remove the 4 bolts which secure the cup adapter to the motor body. Lift off cup adapter and shroud.



- 5) **Remove spindle mount** from spindle. Place a 9/16" end wrench on the spindle and hold in place. Place a 15/16" end wrench on the cup wheel spindle mount (the part of the diamond cup assembly which separated and remained on the spindle) and rotate in a counter clockwise direction to loosen.

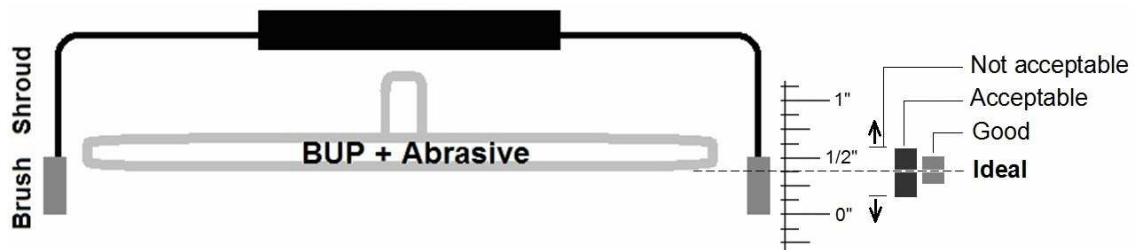


6. Abrasive Depth within Dust Collector

When your tool was purchased new, the abrasive depth was setup to accommodate specific abrasives. To see what abrasives your tool accommodates, use the part number you ordered to lookup your setup in the configuration table on the title page of this manual. Use of other abrasives or backup pads may required you to adjust the abrasive depth.

Effective dust containment relies on: 1) the tool operator holding the dust shroud in contact with the work surface at all times, 2) adequate vacuum airflow at the dust shroud vacuum port to evacuate dust and, 3) the abrasive being at the proper height within the dust shroud. The ideal abrasive height is about 3/8". However, this dimension is subjective and a range of heights provide good to acceptable containment as indicated in Figure 6.1 below.

6.1 Abrasive Depth – Acceptable Values



Depth	Rating
3/8"	Ideal
5/16" – 7/16"	Good
3/16" – 9/16"	Acceptable
<3/16" or > 9/16"	Not Acceptable

Figure 6.1 – Abrasive Depth

NOTE: If your abrasive depth is not within the acceptable range as identified in Figure 6.1, contact your Desco representative for assistance.

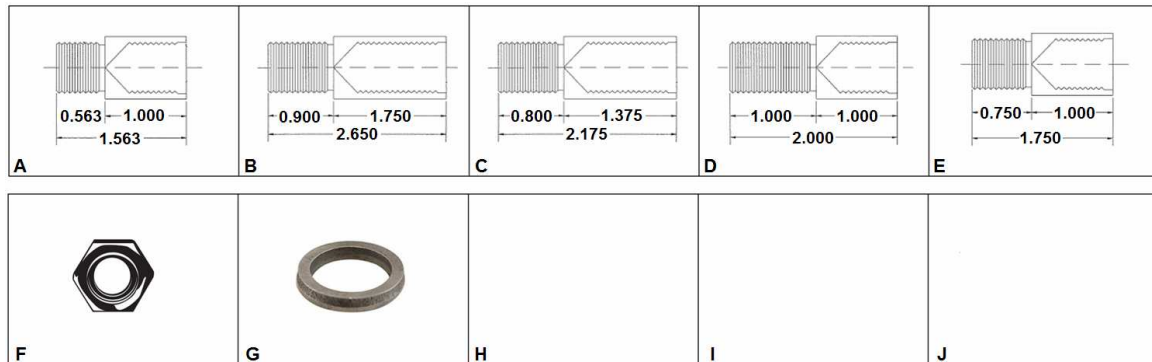
6.2 Abrasive Depth – Adjusting to Accommodate Thickness

Abrasives discs and the backup pads which secure them vary in thickness. As a result, the depth within the dust shroud varies and this affects dust containment. To deal with these variables a system of shaft extensions and spacers are available to adjust the abrasive depth as shown in the Figure 6.2 below.

Abrasive	Backup Pad	Depth Setup Required (Assemble in Sequence Listed)	Depth
4.0" Coated abrasive	4" ROLOC	Shaft-E	3/8"
4.0" Cond disc	4" ROLOC	Shaft-E	5/16"
4.0" BPH (810.426)	4" ROLOC	Jam Nut	9/16"
4.0" Diamond cup	n/a	Shaft-C	1/4"
4.5" Coated abrasive	4.5" Center Nut	Spacer + Shaft-B	7/16"
4.5" RIP disc	4.5" Center Nut	Shaft-B	3/8"
4.5" Cond disc	4.5" Hook & Loop	Spacer + Shaft-E	7/16"
4.5" BPH (810.951)	n/a	Spacer + Shaft-C	1/4"
4.5" BPH, purple	4.5" Center Nut	Shaft-C	3/8"
4.5" Bristle cup	n/a	Shaft-C	3/8"

Figure 6.2 – Abrasive Depth Setup Requirements

6.3 Abrasive Depth – Components to Adjust







Ref	Part	Description
A	500.237	Shaft extension, size A, 5/8-11 x 1.563
B	500.800	Shaft extension, size B, 5/8-11 x 2.650
C	500.230	Shaft extension, size C, 5/8-11 x 2.175
D	500.221	Shaft extension, size D, 5/8-11 x 2.000
E	500.235	Shaft extension, size E, 5/8-11 x 1.750
F	500.002	Jam nut
G	500.810	Spacer

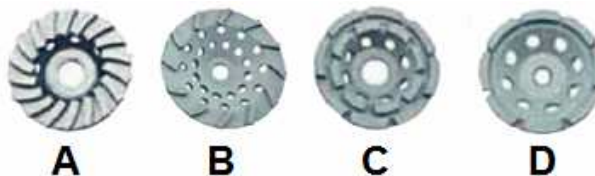
Figure 6.3 – Abrasive Depth Adjustment Components

7. Consumables

7.1 Abrasives

4.0" Diameter		4.5" Diameter			
ROLOC Attaching		Center Nut Attaching			
Coated Abrasives		Coated Abrasives			
	Part		Description	Part	Description
	815.424		4" Coated abrasive, 24 grit	200.019	4.5" Desco RIP disc, 16 grit
	815.436		4" Coated abrasive, 36 grit	815.9424	4.5" Coated abrasive, 24 grit
	815.460		4" Coated abrasive, 60 grit	815.9436	4.5" Coated abrasive, 36 grit
	815.480		4" Coated abrasive, 80 grit	815.9450	4.5" Coated abrasive, 50 grit
820.004	Backup Pad for above	815.9480	4.5" Coated abrasive, 80 grit		
		200.425	Backup Pad for Above		
4" – ROLOC Attaching		4.5" – Hook & Loop Attaching			
Conditioning Discs		Conditioning Discs			
	Part		Description	Part	Description
	810.422		4" Cond. disc, Very Fine	810.911	4.5" Cond. disc, Very Fine.
	810.423		4" Cond. disc, Medium (maroon)	810.912	4.5" Cond. disc, Medium (maroon)
	810.424		4" Cond. disc, Coarse (brown)	810.914	4.5" Cond. disc, Coarse (brown)
	810.425		4" Cond. disc, Sp. coarse (d. brn)	810.915	4.5" Cond. disc, Sp. coarse (d. bn)
810.426	4" Clean-N-Strip (BPH) disc (black)	810.951	Clean-N-Strip (BPH) disc (Black)		
820.004	Backup Pad for above	820.006	Backup Pad for Above		

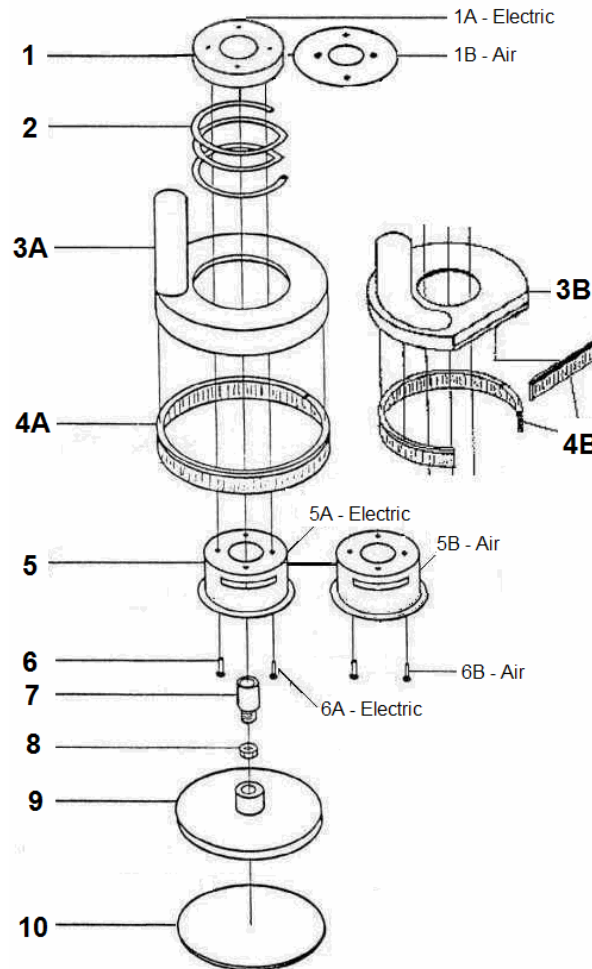
7.2 Diamond Cup Wheels



Ref	Part	Description
A	850.014	4" Diamond cup wheel, 18 segment turbo
B	850.001	4" Diamond cup wheel, 9 segment turbo
C	850.002	4" Diamond cup wheel, double row
D	850.008	4" Diamond cup wheel, single row

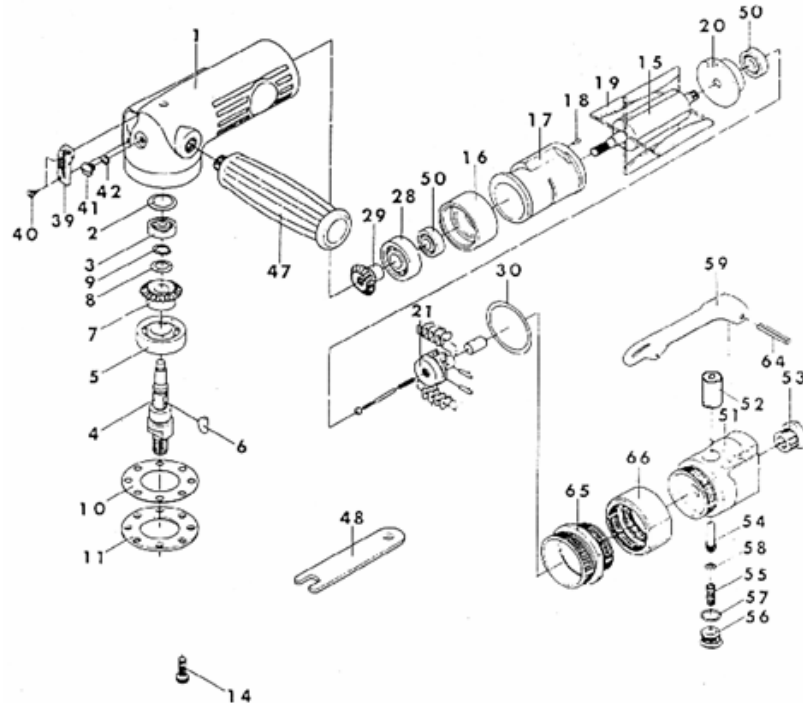
8.0 Schematics

8.1 4" & 4.5" Dust Collector Schematic



Ref	Part No	Description
1a	150.321	Mounting plate, electric
1b	150.009	Mounting plate, air
2	150.011	Spring
3a	150.012	Body, round dust collector
3b	150.005	Body, bullnose dust collector
4a	150.002	Brush, round dust collector
4b	150.001	Brush, bullnose dust collector
5a	150.013	Cup adapter, electric
5b	150.007	Cup adapter, pneumatic
6a	750.073	Bolt, 4 required, electric
6b	750.074	Bolt, 4 required, pneumatic
7	500.235	Shaft extension "E"
8	500.002	Jam nut
9	820.004	Roloc backup pad (or other backup pad as required)
10		Abrasive (included for reference)

8.2 Grinder Schematic



Ref	Part No.	Description
1	550.372	Motor Housing
2	550.373	Seal Plate
3	550.179	Ball Bearing
4	550.374	Arbor
5	550.375	Ball Bearing
6	550.376	Woodruff Key
7	550.377	Bevel Gear
8	550.378	Wave Washer
9	550.379	Stop Ring
10	550.380	Gasket
11	555.069	Metal plate
14	750.075	Bolt (4 req'd)
15	550.382	Rotor
16	550.383	Front End Plate
17	550.384	Cylinder
18	*	Spring Pin
19	*	Rotor Blade (4 req'd)
20	550.381	Rear End Plate
21	550.385	Governor
28	550.345	Ball Bearing
29	550.386	Bevel Pinion

Ref	Part No.	Description
30	*	"O" Ring
39	550.387	Exhaust Deflector
40	550.389	Screw (2 req'd)
41	550.1045	Plug
42	550.388	"O" Ring
47	550.390	Handle
48	550.391	Wrench
50	550.337	Ball Bearing (2 req'd)
51	550.393	Valve Housing
52	550.394	Bushing
53	550.395	Air Inlet Bushing
54	550.396	Valve Stem
55	*	Valve Spring
56	550.397	Throttle Housing
57	*	"O" Ring
58	550.392	"O" Ring
59	550.398	Throttle Lever
64	550.399	Pin
65	550.400	Lock Ring
66	550.401	Nut

* Parts available as 550.371 kit only.