Hand-Held Scarifiers

Needleguns

Walk-Behind Scarifiers

Impact Tools

Sanders

Specialty Tools

Industrial Vacuums

BPH VersaTool

Hand-held Rotary Surface Cleaning Tool

Conventional and *Overboard Discharge* Style

Pneumatic

VersaTool Configurations

Part	Description
170.217	Versatool, Pneumatic, System with Dust Collector
170.218	Versatool, Pneumatic, with Dust Collector
170.181	Versatool, Pneumatic, without Dust Collector
170.186	Versatool, Pneumatic, Overboard Discharge Tool/Pipe Cleaner

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CHAPTER 1 – General Information

1.1 Introduction

This publication describes the Desco VersaTool/Overboard Discharge Cleaner hand held rotary surface cleaning tool. Topics covered in this manual include operator safety, proper operation, maintenance procedures, and troubleshooting.

1.2 Purpose and Function

The machine is a lightweight, portable, pneumatic-powered tool designed for the removal of paint, and corrosion from hard surfaces using a rotating abrasive.

1.3 Capabilities

The Desco BPH VersaTool is designed for removing coatings, rust and corrosion to achieve the cleanliness standard for SSPC Sp.11. The BPH VersaTool is especially effective on rusted and pitted metal, weld preparation and weld inspection. In addition, the Overboard Discharge Tool/Pipe cleaner is ideal for cleaning small diameter pipes.

1.4 Specifications

Air Requirement:	90 psi @ 18 cfm
Speed:	3,200 rpm, (no load)
Horsepower:	0.75 rpm
Weight:	2.5 lbs.
Air Hose Requirement	
Diameter:	1/2" ID
Length:	50′ recommended, 100′ maximum (50′ optimum for maximum CFM)
Vacuum Hose Requirement	
Diameter:	1-1/2" ID
Length:	10′ standard, 25′ maximum

1.5 Preparation for Use

This machine is ready to use when received from the manufacturer, with the exception of attaching the whip assembly to the air motor and air hose. See Chapter 3, paragraph 3.1 for instructions on filling lubricator with oil.

1.6 Consumables and Accessories

Part	Description
Consumables, Versatool Configuration	
170.013	BPH Wheel, 1.25" x 6"
170.014	BPH Wheel, 1.25" x 7" (Can not be used with dust shroud)
9170.014	BPH Wheel, 1.25" x 7" 25/case (Can not be used with dust shroud)
500.146	Wire Wheel, 1" x 6"
Consumables, Overboard Discharge Configuration	
820.0227	XT Disc, 2"
825.8834	Backup pad, 1" (for use with 2" disc)
820.0327	XT Disc, 3"
825.1315	Backup pad, 2" (for use with 3" disc)
Accessories	
500.008	Whip assembly (lub/filter/Evap)
500.062	Replacement filter (replace every 30-45 days)
500.066	Carry case
500.015	Oil bottle

CHAPTER 2 – Safety Precautions

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 Read Operating Instructions

Always become familiar with all the instructions and warnings before operating any power tool.

2.2 Always Wear Approved Eye Protection

Impact resistant eye protection should meet or exceed the standards as set forth in the United States ANSI Z87.1, Occupational and Educational Eye and Face Protection. Look for the marking Z87.1 on your eye protection to insure that it is an approved style. For further information, ANSI Z87.1, Occupational and Educational Eye and Face Protection, is available from the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036.

2.3 Hearing Protection is Recommended

Hearing protection should be used when the noise level exposure equals or exceeds an 8 hour time-weighted average sound level of 85dBA. Process noise, reflective surfaces, other tools being operated nearby, all add to the noise level present in your work area. If you are unable to determine your noise level exposure, we recommend the use of hearing protection.

2.4 Avoid Prolonged Exposure to Vibration

Pneumatic tools can vibrate during use. Prolonged exposure to vibration or very repetitive hand and arm movements, can cause injury. Stop using any tool if discomfort, tingling feeling or pain occurs. You should consult your physician before resuming use of the tool.

2.5 90 PSI Maximum

This tool is designed to operate at an air pressure of 90 pounds per square inch gauge pressure (90 PSI) maximum, at the tool. Use of higher air pressure can, and may cause injury. Also, the use of higher air pressure places the internal components under loads and stresses they were not designed for, causing premature tool failure. The air supply should be clean and dry, preferably lubricated. For best results, drain the moisture from your compressor daily.

2.6 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.

2.7 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.

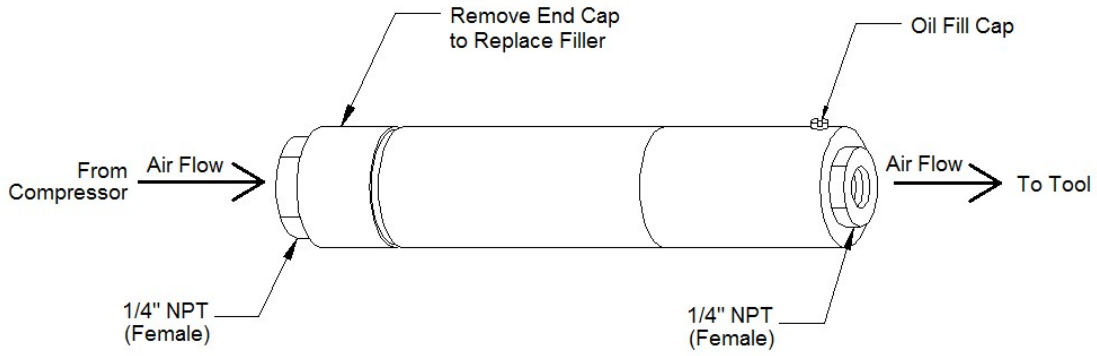
2.8 Tool Use and Care

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. **When starting tool, disengage safety lock-off** before pulling throttle lever. This safety feature is designed to prevent accidental starting of the tool.
5. **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.
6. **Store tools out of reach of untrained persons.** Tools are dangerous in the hands of untrained users.
7. **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.
8. **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.

CHAPTER 3 – Operating Instructions

3.1 Pre-Operation

- ***Abrasive*** – Check abrasive consumable for remaining life. Replace as required. See *Inspection and Replacement* below.
- ***Connections*** – Check the spindle shaft extension and abrasive disc for loose connections. Tighten as needed.
- ***Air Supply*** – Setup all things needed to supply clean, dry compressed air to the tool at your job site at the required pressure (90psi) and volume (18cfm). This includes: fittings, a hose and a filter/lubricator. A 50′, ½" ID hose is recommended as well as large body fittings to allow maximum air flow. Inspect hoses and fittings before each use.
- ***Safety*** – You have considered the job site environment and implemented safety precautions that are situation appropriate.
- ***Lubricator*** – Remove oil fill cap and place ½ oz of light machine oil (ISO VG32 or equal lubricating oil) in the lubricator. Use plastic oil bottle (included in kit), hold firmly against opening and squeeze. The ball check valve prevents oil from flowing out the fill hole. Top off oil in lubricator at 8 hour intervals.
  Note: If loss of air pressure occurs, the filter in lubricator may need to be replaced. Stop machine, shut off air supply, and disconnect hose from machine. To replace filter, simply remove end cap, remove old filter, insert new filter, and replace cap as shown previously in Figure 2-1.



- **Inspection and replacement**

Part	Inspection	Replacement
Abrasive wheel	Daily	Replace when worn to within ¼" of flange. Check for loose connections. Tighten as needed.
Hoses & fittings	Daily	If leaks are discovered, hose should be replaced. If leaks are around fittings, hose may be repairable.

3.2 Operation

When setup steps are complete, you are ready to operate the tool. The following are step-by-step procedures for operating the Desco BPH VersaTool/Overboard Discharge Tool hand-held rotary surface cleaning tool.

Be sure to read, understand and follow section *3.1 Pre-Operation* instructions before operating tool.

3.2.1 Power On/Off

Power is controlled with a throttle lever which has a double safety lock-off feature designed to prevent accidental starting of the tool.

- **Power On** – 1) Slide the lock-out pin forward then, 2) Squeeze the lever.
- **Power Off** – Release the lever.

3.2.2 Starting the Tool

A. ***Grasp Firmly*** – with both hands. Place one hand on the handle and the other hand on the air motor.

B. ***Position Tool*** – Place the tool at the work location with the abrasive wheel within about 2" of surface to allow the wheel to spin free.

C. ***Power On*** – Start the tool using the above power on sequence. Continue to hold the tool off of the surface until the motor comes up to operating speed.

D. ***Engage Tool*** – With motor up to speed, ease the abrasive wheel to the surface to engage the abrasive.

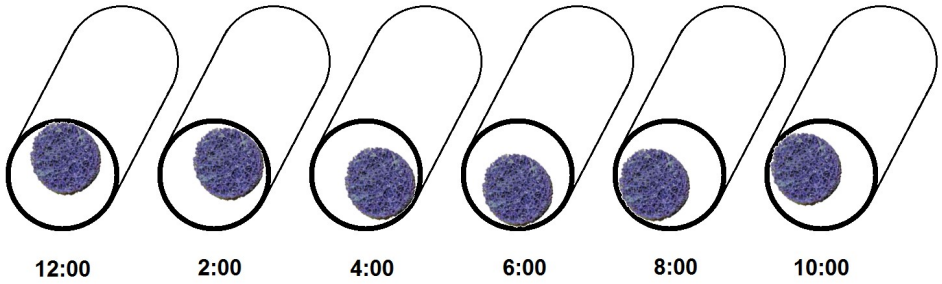
3.3.3 Working the Surface

A. <u>VersaTool</u> Configuration

1. ***Grid Pattern*** – Move tool in a system of grid patterns. Complete one grid before moving to the next. Cut a swath, move to the right about 1 inch and repeat. Use a stroke length that is convenient to the surface and your arm length.
2. ***Work the Edge*** – Overlap each stroke to maximize productivity. The edge refers to the freshly cut edge left by a stroke of the tool. The very first pass is more difficult because it has to break through the coating. Subsequent passes are more efficient because the coating surface has been broken.

B. <u>Overboard Discharge</u> Configuration

1. **Insert abrasive** into overboard discharge (pipe), hold abrasive just inside opening with abrasive clear of pipe walls.
2. **Start tool** and let abrasive come up to speed.
3. **Position abrasive disc** at the twelve o'clock (12:00) position within the pipe, then engage abrasive with surface.
4. **Cleaning stroke –** Insert abrasive disc to desired depth then withdraw disc. Make sure disc remains in contact with the interior pipe wall for complete length of the stroke.
5. **Repeat cleaning** stroke at 2 hour position intervals until desired cleanliness is achieved.



3.3 Post-Operation and Stowage

Disconnect whip assembly from machine and place 5-8 drops of light machine oil (ISO VG32 or equal lubricating oil) in air inlet. Reconnect whip assembly to air inlet and run motor for 2-3 seconds (just long enough for oil to get into motor, but not pass through) to flush the system.

Wipe off all dust and dirt with a dry rag.

Remove, coil, and secure air hose with a piece of string or wire.

CHAPTER 4 – Maintenance Instructions

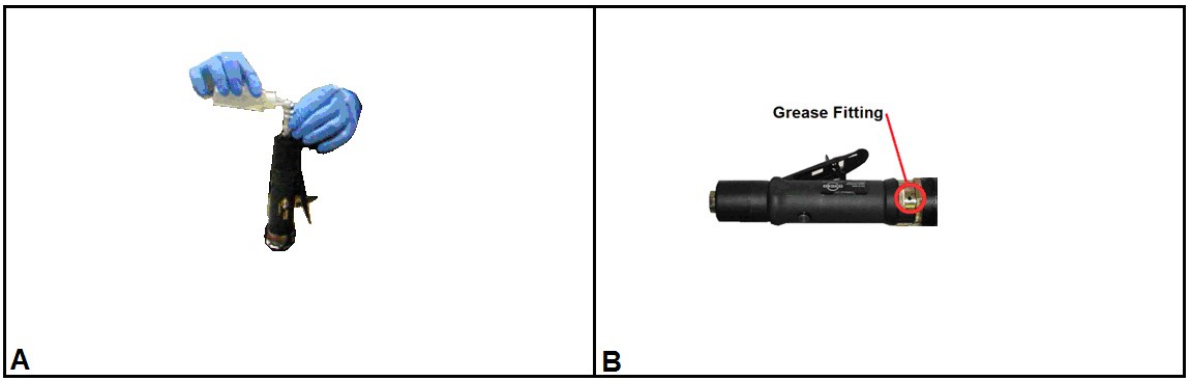
4.1 Cleaning and Lubrication

Clean the Desco BPH VersaTool after each use by wiping off all dust and dirt with a clean, dry cloth.

Lubricate the VersaTool as follows:

A) **Every 8 hours** of operation the motor should be lubricated by placing 3-4 drops of pneumatic tool oil into the air fitting. Re-attach an air hose and run tool for a few seconds to disburse the oil.

B) **Every 250 hours** of operation the planetary gears should be lubricated by injecting high temperature bearing grease into the grease fitting using a compact style grease gun.



4.2 Performance Verification

Check “ON/OFF” handle to make sure the double safety lock-off lever is operating properly.

DO NOT use the tool if the lock-off lever will allow the tool to start with a single action. The double safety lock-off lever is an important safety feature that requires two (2) actions to start the tool. If this feature fails to function, the tool must be repaired before being used.

4.3 Removal and Replacement of Abrasives

WARNING – Always disconnect tool from power supply before performing any maintenance or inspection operation.

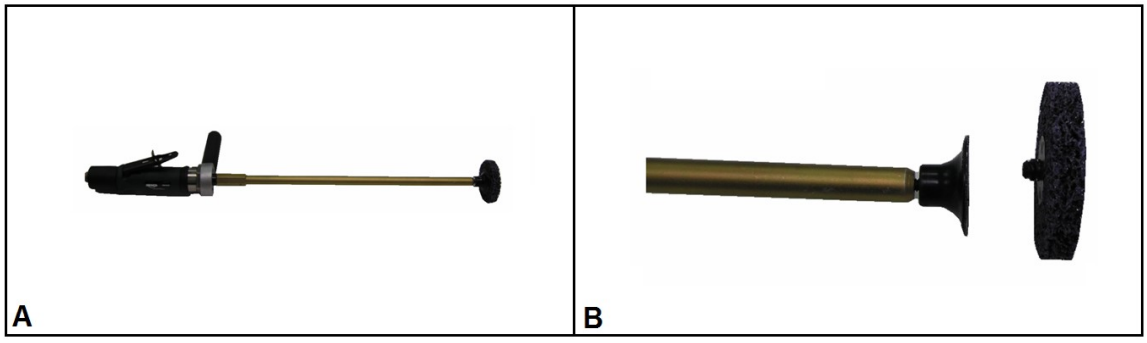
4.3.1 VersaTool Configuration

To remove and replace abrasives on the VersaTool configuration, begin by laying the tool on a suitable work surface.

A) Lock spindle with the supplied end wrench.
B) Remove hub retaining bolt with the supplied wrench.
C) Remove hub outer cover.
D) Remove old abrasive wheel and replace with new abrasive wheel. Reassemble by reversing the disassembly procedure. Make sure to securely tighten the hub retaining bolt.

4.3.2 Overboard Discharge Configuration

A) To remove and replace abrasives on the Overboard Discharge configuration, begin by laying the tool on a suitable work surface.
B) Remove ROLOC abrasive by rotating counter-clockwise. Install new ROLOC abrasive by rotating clockwise. Do not overtighten.

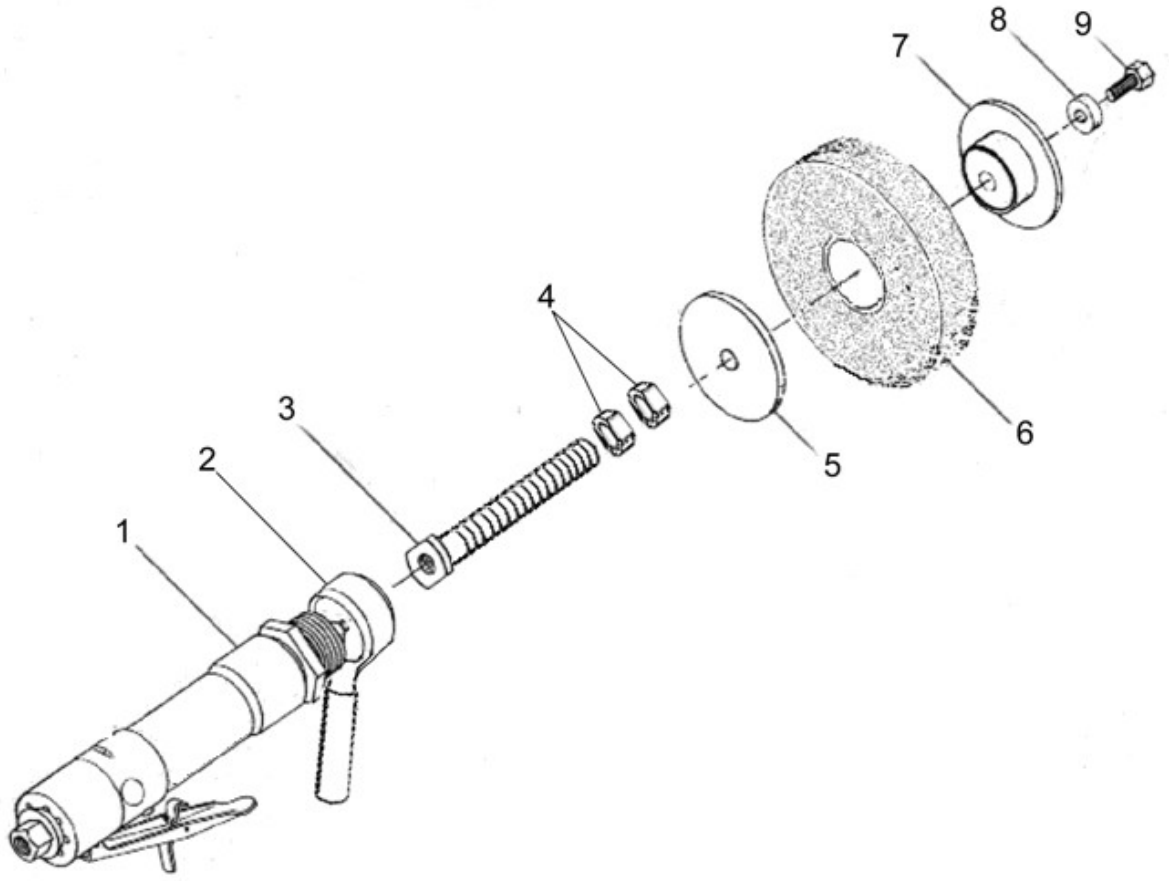


CHAPTER 5 – Troubleshooting

Malfunction	Probable Cause	Solution
Loss of air pressure	Filter clogged	Replace filter.
	Air motor rotor blades frozen	Clean motor and replace blades.
	Air passing through without motor turning	Clean motor and replace blades.
	Washer reversed	Reinstall so smaller diameter is against diffuser.
Difficult to remove hub assembly	Nut on shaft arbor loosening	Hold nut in vice with spindle assembly slightly threaded into nut. Place 1 drop of loctite on bottom of threads of P/N 10. With air pressure, turn on tool so threads are securely tightened into nut.

CHAPTER 6 – Schematics

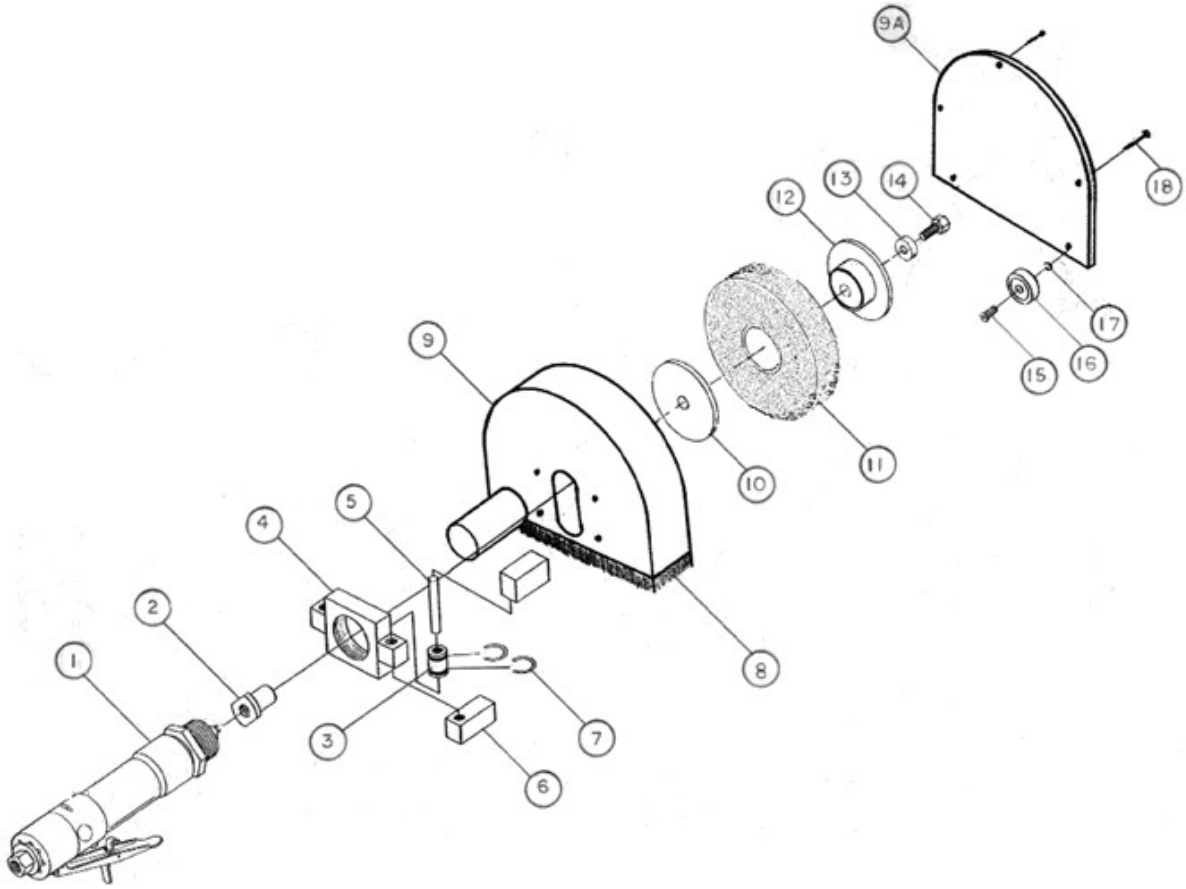
6.1 VersaTool without Dust Collector



Ref	Part	Description
1	100.025.2	Air Motor
2	500.003	Handle Assembly
3	170.029	Spindle Extension
4	500.002	Jam Nuts
5	500.045	Flange

Ref	Part	Description
6	170.014	BPH Wheel
7	500.048	Flange
8	170.003	Recess Washer
9	170.001	Shaft Bolt

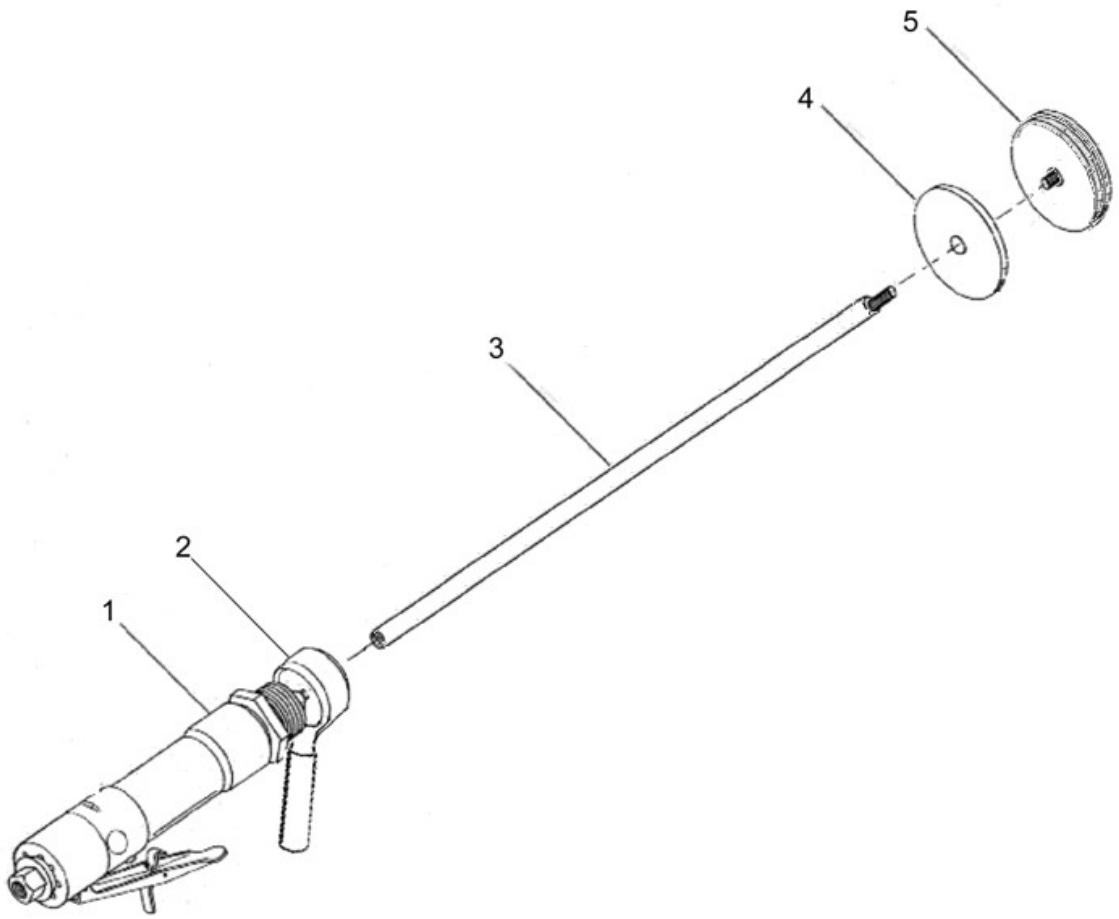
6.2 VersaTool with Dust Collector



Ref	Part	Description
1	100.025.2	Air Motor
2	170.011	Shaft Adapter
3	170.004	Bushing (2 req)
4	170.009	Motor Guide
5	170.006	Guide Bar (2 req)
6	170.007	Guide Mount (4 req)
7	170.010	Retaining Ring (4 req)
8	170.005	Brush Set
9,9A	170.008	Housing (2 pcs)

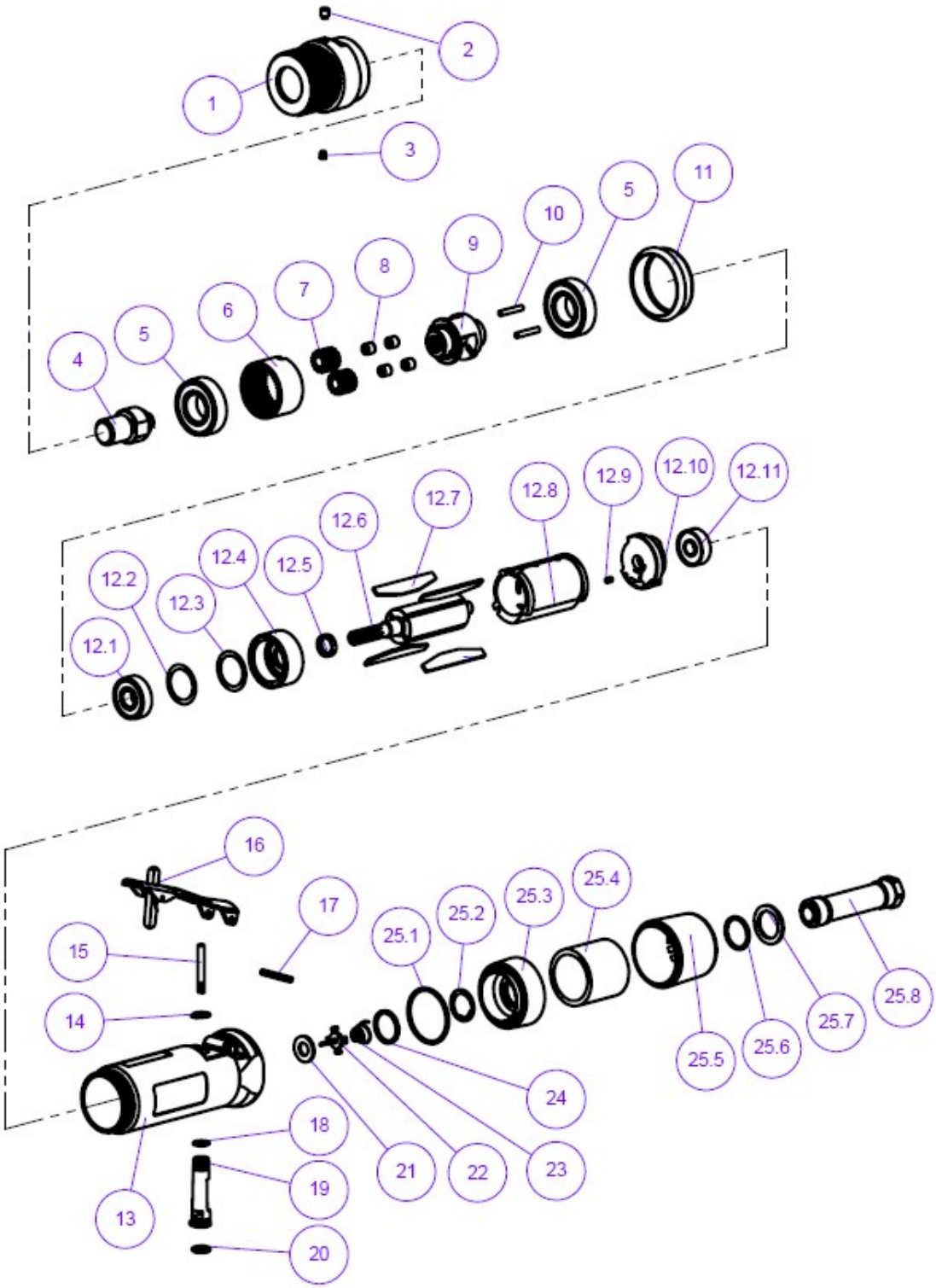
Ref	Part	Description
10	500.048	Flange BPH
11	170.013	BPH Wheel
12	500.045	Flange
13	170.003	Recess Washer
14	170.001	Shaft Bolt
15	750.015	Bolt (4 req'd)
16	550.321	Roller Bearing
17	750.054	Lock Washer (4)
18	750.073	Bolt (3 req'd)

6.3 VersaTool – Overboard Discharge Tool



Ref	Part	Description
1	100.025.2	Air Motor
2	500.003	Handle Assembly
3	170.090	Spindle Extension, Overboard Discharge Style
4	825.1315	Backup Pad, 2" (Use with 3" disc)
	825.8834	Backup Pad, 1" (Use with 2" disc)
5	820.0327	Abrasive, BPH/XT, 3" (Use with 2" BUP)
	820.0227	Abrasive, BPH/XT, 2" (Use with 1" BUP)

6.4 VersaTool Air Motor



Air Motor Parts List

Ref	Part	Description	Qty
1	550.8337	SINGLE PLANETARY HOUSING 1 9/16-18 (E8337)	1
2	550.04014	SCREW- SET, M5 x 0.8 THD., 6 LG. (04014)	1
3	550.01041	FITTING- GREASE/OIL	1
4	550.8705	SPINDLE, DESCO (E8705)	1
5	550.02552	BEARING, W/SHIELDS- Ø35 x Ø17 x 10	2
6	550.53191	RING GEAR, (5.75:1 & 4.8:1)	1
7	550.53193	GEAR (5.75 : 1)	2
8	550.04026	6.5 O.D. NEEDLE BEARING	4
9	550.53180	PLANETARY CARRIER	1
10	550.53182	SHAFT- GEAR, CUT	2
11	550.53175	INSULATOR COLLAR	1
12	550.53169	MOTOR ASSY. 0.7HP - 5.75 :1 REAR EXHAUST	1
12.1	550.01007	BEARING, W/SHIELDS- Ø26 x Ø10 x 8	1
12.2	550.01293	SHIM, Ø24.7 OD x Ø19.25 ID x .025 THK.	1
12.3	550.01294	SHIM, Ø24.7 OD x Ø19.25 ID x .05 THK.	1
12.4	550.53183	END PLATE- FRONT, 0.7 HP	1
12.5	550.01010	SPACER-MOTOR	1
12.6	550.04017	ROTOR- 8 TOOTH PINION	1
12.7	550.01057.9	MOTOR VANE (01057-90)	4
12.8	550.01028	CYLINDER- 0.7 HP MACHINED	1
12.9	550.50767	PIN- SPRING, Ø2.5 MM	1
12.10	550.01721	END PLATE- REAR, 0.7 HP	1
12.11	550.02649	BEARING- Ø22 x Ø8 x 7	1
13	550.8336	HOUSING ASSY- 0.7 HP, DESCO (E8336)	1
14	550.95558	RING- RETAINER, EXT. 5100-037	1
15	550.01477	VALVE STEM- PALM STYLE	1
16	550.273	LEVER- SAFETY LOCK, EXTENDED	1
17	550.01017	PIN- SPRING, 3 x 25 LG.	1
18	550.95730	O-RING, Ø8 O.D. x 1 THK	1
19	550.01247	SPEED REGULATOR, 0.5 HP	1
20	550.01024	O-RING, Ø7.6 O.D. x 1.8 THK	1
21	550.01464	SEAL- INLET BUSHING	1
22	550.01472	TIP VALVE	1
23	550.01468	SPRING- CONICAL, Ø.25IN x Ø.562IN x .5IN	1
24	550.01564	AIR CONTROL RING- Ø20.50 O.D.	1
25	550.94519	MUFFLER ASSY- DBL FELT	1
25.1	550.95438	O-RING, 1-3/8 OD x 1-1/4 ID x 1/16 THK.	1
25.2	550.95711	SNAP RING- 5/8 IN.	1
25.3	550.94521	BASE- MUFFLER	1
25.4	550.94528	FELT SILENCER	1
25.5	550.94522	CAP- MUFFLER	1
25.6	550.95375	O-RING, 3/4 OD x 5/8 ID x 1/16 THK.	1
25.7	550.94526	WASHER- MUFFLER	1
25.8	550.94523	ADAPTER- INLET ASSY, MUFFLER	1