DESCO

SCARIFIERS

Hand-held & Walk-behind

NEEDLE SCALERS

Hand-held & Extended Reach

GRINDERS/SANDERS

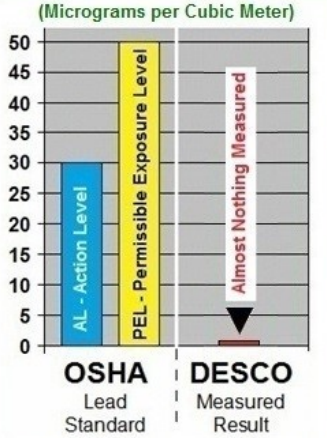
Hand-held & Extended Reach

INDUSTRIAL VACUUMS

Hazmat & Radiological

OSHA Compliant*

(Micrograms per Cubic Meter)



**Industrial Hygiene report results for tools tested.*

DESCO

Stand-Up FX

Walk-behind Rotary Scarifier

Electric

Pneumatic

Stand-Up FX (SUFX) Configurations

Part	Description	Hub Included[1]	Accessories Furnished
Electric			
110.2243	SUFX, Reloadable	Cutter hub, reloadable	Tool kit, A[2]
110.2246	SUFX, Roto-hammer	Hammer hub	Tool kit, A[2]
110.2245	SUFX, Belt grinder	Cushion hub	Tool kit, B[3]
Pneumatic			
110.214	SUFX, Reloadable	Cutter hub, reloadable	Tool kit, A[2]

Notes:

[1]Roto-Peen ***can not*** be used with the Stand-Up FX.

[2]Toolkit A contains: Jam nut wrench, 5/32" Allen wrench & 3/16" Allen wrench

[3]Toolkit B contains: Jam nut wrench, 3/16" Allen wrench, 1/2" Allen wrench & center-nut wrench.

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August 2024

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CHAPTER 1 – General Information

1.1 Introduction

This publication describes the Desco Stand-Up FX (SUFX), a walk-behind rotary scarifier. Topics covered in this manual include operator safety, proper operation, maintenance procedures, and troubleshooting.

1.2 Purpose and Function

The machine is a portable tool designed for the removal of scale, paint, and corrosion from hard surfaces using a rotating head fitted with Cutters, Roto-Hammers or Coated Abrasives.

1.3 Capabilities

The machine can be used to remove paint, primer, nonskid, corrosion or contaminants, and to feather paint on many surfaces, including steel, aluminum or concrete. When configured with a cushion hub and coated abrasives, the SUFX excels at post-weld leveling. The interchangeable hub assemblies excel at these tasks.

Cutters are used to remove heavy coatings including epoxy and elastomeric type coatings, mastic removal, non-skid removal, as well as concrete scarification. The reloadable cutter hub allows operator to replace worn cutters with a reload kit. Having a second reloadable hub on-site will speed consumable change out and greatly benefit productivity.

Note: The reloadable cutter hub works in either the Stand-up FX or hand held FX tool. However, when used on the SUFX, an adapter plate is attached to the end of the hub to accommodate a second bearing mounted in cover door

Roto-Hammers are very effective in removing fracturable coatings. Due to their design, they are also ideal for removing coatings from irregular surfaces or surfaces with holes or protruding objects such as nuts, bolts, welds and tie downs. Due to the Roto-Hammer design, they perform much like a needlegun in terms of both profile and versatility. Hammers will step over obstacles like bolt heads and step into depressions, in the same manner as the needles of a needlegun.

Cushion hubs are used for applications requiring coated abrasives. The cushion hub excels at tasks such as post-weld leveling and grinding off scars left by cutting off lifting padeyes. These post-weld tasks are traditionally done with a hand held grinder with the tool operator on his knees. However, the SUFX/Cushion setup provides significant advantages over a hand-held grinder process, including: 1) Productivity – faster results, 2) Esthetics – no swirl marks and, 3) Ergonomics – the worker operates the machine from a standing position.

1.4 Specifications

Item	Electric	Pneumatic
Power required	120V, 15A	85 psi @ 39 cfm
Duty cycle	30 min on/30 min off*	2 hours on/30 min off*
Speed (no load)	6,000 rpm	4,500 rpm
Weight (motor+body, no hub)	42 lbs.	36 lbs.
Length	30"	
Height	39"	
Vacuum Hose (optional)		
Diameter	1-1/2" ID	
Length	10′ standard, 25′ max	

*__Duty Cycle__ – Off cycle is 30 minutes and *when motor body is* __cool to the touch__.

1.5 Preparation for Use

This machine is ready to use when received from the manufacturer except as follows:

A) **Airway Oil** (Pneumatic Only) – See *section 4.2.2* for complete airway lubrication instructions.

B) **Hub Selection** – If the operator elects to use a different hub from that which comes installed on the machine, turn to *section 4.3* for instructions on how to replace hubs.

1.6 Hub Coverage and Service Life

FX Tool Hub Coverage Rate and Service Life*			
Hub Type	**Surface Area** (SqFt)		**Life** (hours)
	Concrete	**Steel**	
Cutter Hub	60 – 200	60 – 200	1 – 4
Hammer Hub	120 – 250	120 – 250	10 – 30

***Service Life Notes:**

1) **Range of Life** – Many variables affect consumable service life. They include type of substrate, surface condition, type of coating, coating thickness, and operator experience. Therefore, a range of area/time is offered for comparison of best/worst case conditions.
2) **Economy of Operation** – Productivity is a measurement of work completed within a time frame. The more you complete, the more productive you are. Hub condition has a direct bearing on productivity in 2 critical ways:
   a) ***Productivity*** – Sharp cutters are tight and right. They cut faster and get more work done than worn cutters. To continue to use worn cutters beyond their service life is a ***false economy*** *that should be avoided*.
   b) ***Excess Wear and Tear*** – A damaged hub can be ***destructive and cause premature tool failure***. An out of balance hub condition will cause excess vibration and can result from worn, broken or missing cutters. If left uncorrected, excess vibration from an unbalanced hub will cause premature failure of bearings, gears or other components.
3) **Check Hub Condition Often** – At 2 hour intervals and when unusual vibration is detected. Check for broken or missing cutters and correct as required.

1.7 Accessories & Maintenance Items

Part	App*	Description
		Interchangeable Hubs
110.032.2	B	Hub, Cutter, Reloadable, Stand-up, w/cutters
110.022	B	Hub, Roto-Hammer (eq. to a high speed needlegun)
110.096	B	Hub, Cushion (for use with abrasive belts)
		Consumables
110.033	B	Reload, cutters and pins
820.54677	B	Abrasive belt, 36 grit (other grits available)
110.001	B	Replacement Brush Set for Dust Collector. Comes with brush, channels and rivets
		Lubrication *(Pneumatic Only)*
500.015	P	Oil, pneumatic tool, airway lubrication, 2oz bottle
900.10225	P	Grease gun, compact style. **Apply grease to air motor every 40 hours** of operation.
777.002	P	Grease, high temperature bearing grease. Mobil XPH 222 or equal.
550.492	P	***Lubrication kit***, for pneumatic motors. Includes: A) oil (500.015), B) grease gun (900.10225), C) grease (777.002) and, D) Super blast-off.
		Maintenance
110.036.2	B	Outboard bearing. **Replace every 40 hours** of operation. Grease air motor when bearing is changed.
110.046.2	B	Bearing shaft plate. **Replace every 80 hours** of operation.
110.130	B	***Maintenance kit***, for SUFX. Includes: A) (4) Outboard bearings (110.036.2) and B) (2) Bearing shaft plates (110.046.2).

Applies to*: **E=Electric only, **P**=Pneumatic only, **B**=Both

1.8 Critical Maintenance Overview

Routine maintenance is crucial to safety, productivity and tool life. Please familiarize yourself with the critical maintenance tasks below. For a full description of maintenance procedures, see *Chapter 4 – Maintenance Instructions* later in this document.

Service Task	Hour Interval									
	8	16	24	32	40	48	56	64	72	80
Monitor for excess vibration[1]	At all Times									
Check for worn[2], broken, or missing cutters	Every 2 Hours of Operation									
Lubricate pneumatic motor air passage:	■	■	■	■	■	■	■	■	■	■
Grease motor bearings					■					■
Replace outboard bearing					■					■
Replace bearing shaft plate										■

[1]**Monitor vibration** – when excess vibration is detected, immediately check for out-of-balance hub condition caused by worn, broken or missing cutters.

[2]**Cutters are worn out** and must be replaced when tooth height is less than 1/8".

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 Power Required

Electric – This tool is designed to operate at on electricity delivered at 115 volts. The motor is double insulated for safety and does not require grounding for operator safety.
Pneumatic – This tool is designed to operate at an air pressure of 85 pounds per square inch gauge pressure (85 PSI) maximum, at the tool. Use of higher air pressure can, and may cause injury.

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. **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.

CHAPTER 3 – Operating Instructions

3.1 Pre-Operation

- ***Safety*** – You have considered the job site environment and implemented safety precautions that are situation appropriate.
- ***Hub*** – Install hub of choice for task. Check consumables for remaining life. Replace consumables as required. See *3.2 Consumable Inspection and Replacement* below.
- ***Vacuum*** – Vacuum is optional but highly recommended where dust containment is of concern due to matters of health and safety. Connect vacuum to tool with a 1.5" vacuum hose attached to the tool vacuum port.
- ***Power*** – Connect the tool to a known safe power source: a) *electric* – a grounded 115v outlet or, b) *pneumatic* – a clean air supply delivering 85psi at 39cfm.
- ***Performance Verification*** – Check “ON/OFF” handle to make sure the dead man switch is operating properly.

3.2 Consumable Inspection and Replacement

Before work begins and periodically during the work period the consumable abrasives should be inspected wear and replaced as indicated in the table below.

Part	Inspection	Replacement
Cushion hub	Every 20 min	Replace when abrasive grit looses productivity or fabric is torn.
Cutter hub	Every 2 hours	Replace when any of the following are true: a) cutter teeth are worn to within 1/8" of solid core, b) cutters are broken or, c) cutters are missing. See maintenance *section 4.4* for cutter reload instructions.
Hammer hub	Every 2 hours	Replace when worn (when hammer doesn’t strike surface), or when hammer is broken.

3.3 Operation

When setup steps are complete, you are ready to operate the tool. The following are step-by-step procedures for operating the Stand-Up FX, walk-behind rotary scarifier.

3.3.1 Power On/Off

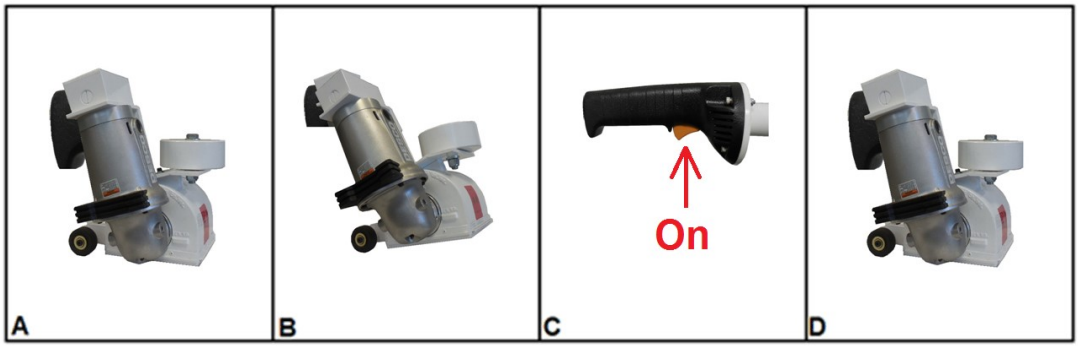
Power is controlled with a trigger switch. To start the tool, pull the trigger switch. To stop the tool, release the trigger.

The *power on/off sequence* is **critical** to effective dust containment.

Sequence	First Action	Second Action
On	Vacuum **On** 	Tool **On** 
Off	Tool **Off** 	Vacuum **Off** 

3.3.2 Starting the Tool

A. ***Grasp Firmly*** – Hold handle with both hands.
B. ***Heal Down/Toe Up*** – Tip the tool backward, pivoting on the wheels such that the front of the tool is elevated about 2" to allow the hub to spin free.
C. ***Power On*** – Start the tool using the above power on sequence. Continue to hold the front up until the motor comes up to full operating speed.
D. ***Level Tool*** – With motor up to speed, ease the front down to the surface to engage the abrasive.



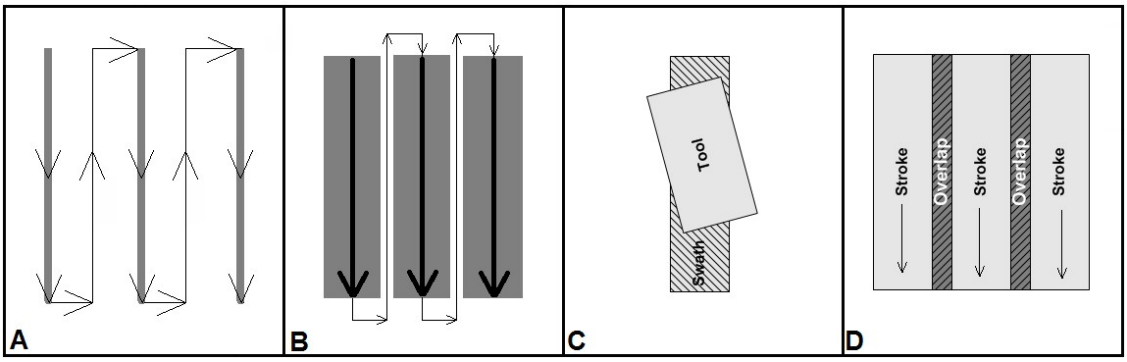
3.3.3 Working the Surface

A. ***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 4 inches and repeat. Use a stroke length that is convenient to the surface and your stride.

B. ***Cut on Back Stroke*** – While the tool will cut in either the forward or backward direction, the backward direction is more effective due to the direction of rotation.

C. ***Skew the Stroke*** – Hold the machine angled about 5 to 10 degrees from straight. Angling (skewed) results in a cleaner surface with less streaking than a straight motion.

D. ***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.



3.4 Post-Operation and Stowage

Wipe off all dust and dirt with a clean dry rag. Coil power cord and secure with a piece of string or wire.

CHAPTER 4 – Maintenance Instructions

4.1 Critical Maintenance

Routine maintenance is crucial to safety, productivity and tool life. Please familiarize yourself with the critical maintenance tasks below.

Service Task	Hour Interval									
	8	16	24	32	40	48	56	64	72	80
Monitor for excess vibration[1]	At all Times									
Check for worn[2], broken, or missing cutters	Every 2 Hours of Operation									
Lubricate pneumatic motor air passage:	■	■	■	■	■	■	■	■	■	■
Grease motor bearings					■					■
Replace outboard bearing					■					■
Replace bearing shaft plate										■

[1]**Monitor vibration** – when excess vibration is detected, immediately check for out-of-balance hub condition caused by worn, broken or missing cutters.
[2]**Cutters are worn out** and must be replaced when tooth height is less than 1/8".

4.2 Lubrication

4.2.1 Electric Motor

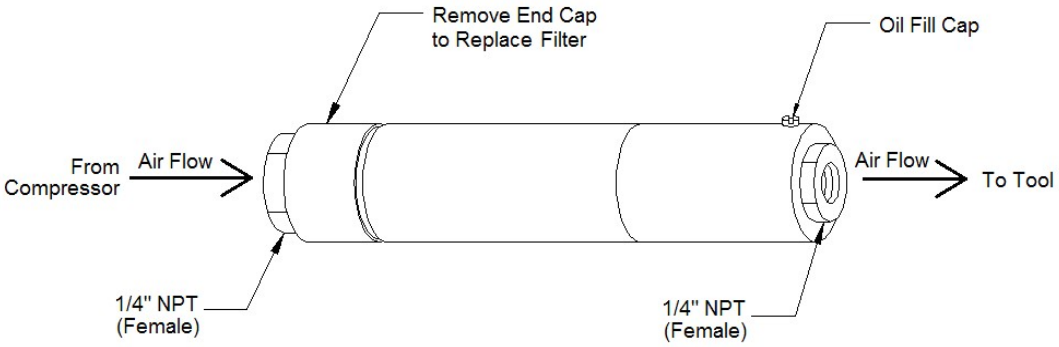
The electric motor has no external lubrication points to be serviced.

4.2.2 Pneumatic Motor, Airway Oil

The pneumatic motor airway requires regular oil lubrication. The airway is the path through which compressed are travels through the motor. Two (2) options are available to lubricate the airway:

A) **Manual Oil Service** – *Every 8 hours* of operation the motor should be lubricated by placing 3 - 4 drops of pneumatic tool oil (ISO VG32 or equal oil) into the air fitting. Re-attach an air hose and run tool for a few seconds to disburse the oil.

B) **Automatic In-line Oiler** (*Optional, preferred*) – Every 8 hours check and top-off lubricator reservoir. Remove oil fill cap and fill with pneumatic tool oil (ISO VG32 or equal lubricating oil). Use plastic oil bottle, hold firmly against opening and squeeze. A ball check valve prevents oil from flowing out fill hole.
Note: If air pressure loss occurs, the filter in lubricator may need to be replaced.



4.2.3 Pneumatic Motor, Bearing Grease

Every 40 hours of operation the ring gears should be lubricated by injecting 2-pumps of high temperature bearing grease into the grease fitting using a compact style grease gun. Use Mobil XPH 222 or equivalent.

4.3 Removal and Replacement of Hub Assemblies

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

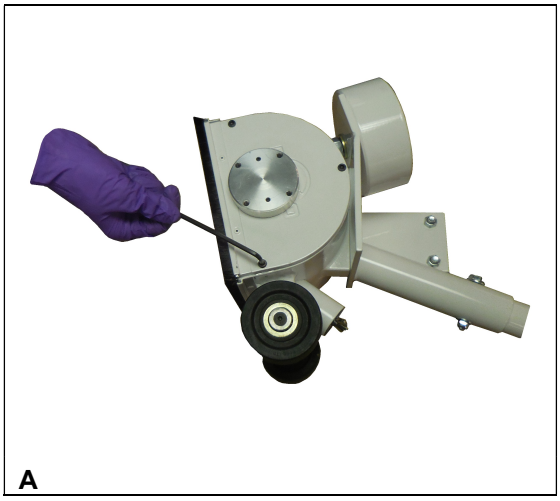
Remove and replace hubs using the following procedure.

A. *Remove Side Cover* – Using the supplied Allen wrench, remove the three (3) Allen head bolts. Set aside cover and bolts for reassembly.

B. *Remove Hub* – 1) Insert the supplied end wrench between the hub and tool body to hold the spindle in place. 2) Insert a large screwdriver into the hub to provide leverage. 3) Apply force to hub with screwdriver in the counterclockwise direction. **Note,** *Electric Motor*: *DO NOT* use the integrated spindle lock for this purpose.

C. *Remove End Plate* – Remove hex bolts securing end plate. Set aside end plate and bolts for reassembly.

D. *Replace Hub* – Install new hub by reversing the dis-assembly procedure. For cutter hub reload instructions, see section ***4.4 Reload Cutter Hub using Re-load Kit.***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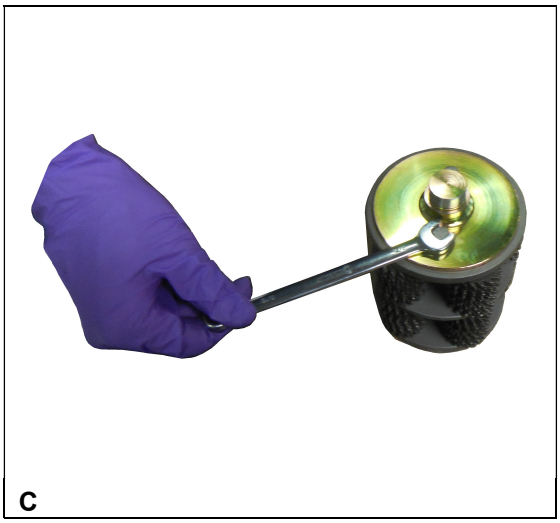
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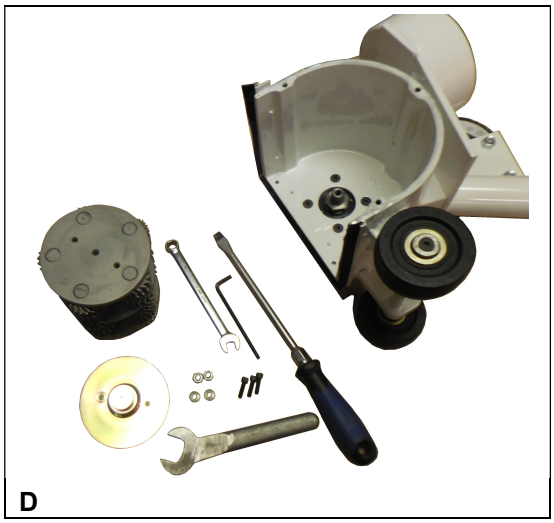

D

4.4 Reload Cutter Hub using Re-load Kit

Begin by removing the hub as described in paragraph 4.3.

A. ***Remove End Plate*** – Remove and discard the two (2) hex head bolts and washers securing the end plate. Set aside end plate for later use.

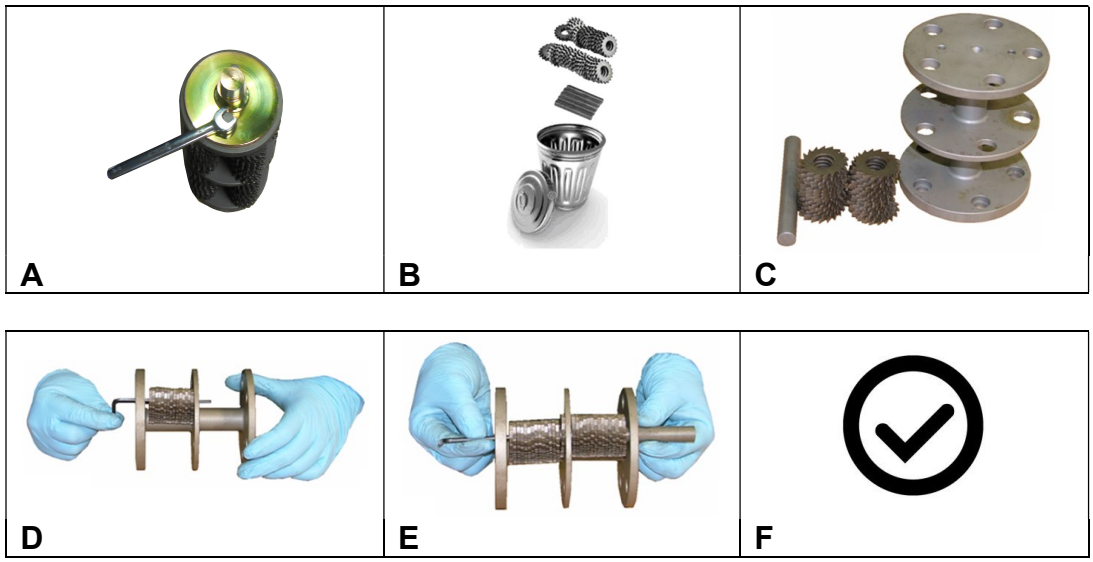
B. ***Remove & Discard Cutters*** – Discard old cutters, pins and hex bolts.

C. ***Count Cutters*** – Count into stacks of 15 cutters and hold the first stack in your hand.

D. ***Stage cutters*** – Use the Allen wrench to temporarily hold the cutters in place.

E. ***Load cutters*** on opposite side directly onto the pin. Then slide pin through hole, pushing out Allen wrench, leaving pin holding cutters. Repeat steps D-E for each row of cutters.

F. ***Finish & Ready*** – A) *Replace end plate* and secure with new bolts and washers provided. B) *Install hub* on spindle and attach side cover. C) *Check* ***Critical Maintenance*** schedule and service as needed.

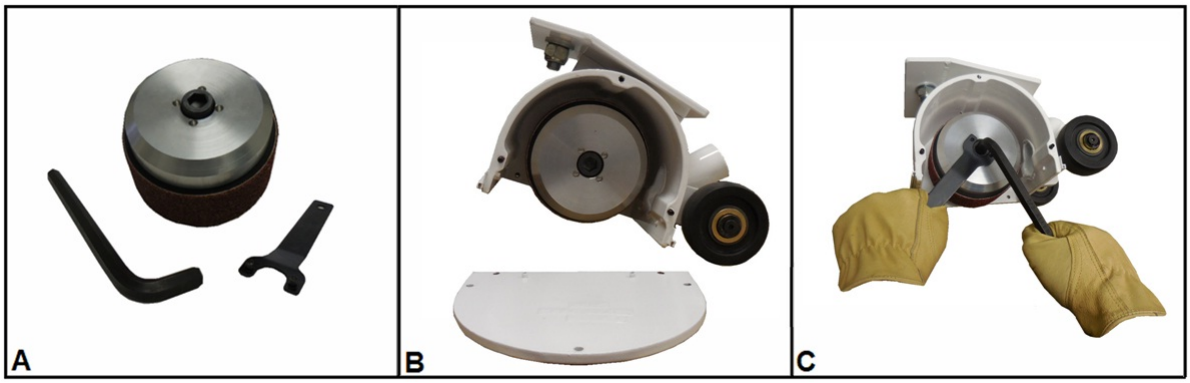


Note: Pins should be replaced when they become bent, worn or otherwise damaged. When using the re-load kit that comes with pins, the pins should be replaced with each cutter load. However, when reloading with bulk cutters, the pins may be reused one time provided they are not damaged.

4.5 Cushion Hub Re-load and Removal

This section covers cushion hub service tasks of 1) reloading the abrasive belt and, 2) removal & replacement of the entire hub. Because most steps are common to both procedures, they will be described together.

Note: When re-loading the abrasive belt, the hub need not be removed from the tool.



A. *Locate Tools* – Locate the special tools required which are provided with the cushion hub configuration: 1) 1/2" Allen wrench and, 2) a spanner wrench.

B. *Remove Side Cover* – Remove hardware securing side cover door and set aside for later use. Some models are secured with 3 Allen bolts while others are secured with a single thumb screw.

C. *Remove Out-board hub flange* – With side cover removed, lay tool on right side to allow full access to left side opening. With one hand, place spanner wrench studs into matching hub flange holes to lock flange in place. With the other hand, place Allen wrench in center bolt and turn in a counter-clockwise direction to loosen and remove bolt. Remove hub flange from rubber wheel by pulling upward. If hub flange is too tight, you may need to rock the flange left/right/forward/back while pulling up.

Warning: Use spanner wrench provided to lock the hub. **Do not** use the spindle lock which is built into the motor. Failure to observe this warning may result in the motor spindle lock breaking.

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4.5 Cushion Hub Re-load and Removal – Cont'd.

D. *Remove Cushion "Tire"* – Remove rubber cushion "tire" by pulling up while rocking left/right/forward/back. Set aside for later use.

E. *Remove or Re-load*:

Remove – To completely remove cushion hub, set cushion tire aside and skip to step F.

Re-Load – To reload belt, 1) remove worn belt by sliding off tire. Grasp belt with fingers on both sides of tire and pull up evenly. Alter hand position by 90 degrees and repeat until belt slides off of tire. 2) replace belt by sliding new belt over tire. Push evenly until belt is flush with tire edge. 3) re-assemble hub by reversing the disassembly procedure.

F. *Remove inboard hub flange* (to completely remove cushion hub): With one hand, place the 1" thin wrench on the jam nut between the spindle and inboard hub flange to lock the spindle. With the other hand, place the spanner wrench studs into matching hub flange holes. Turn the spanner wrench in a counterclockwise direction to loosen and remove the inboard flange. Use appropriate procedure to mount a new hub.

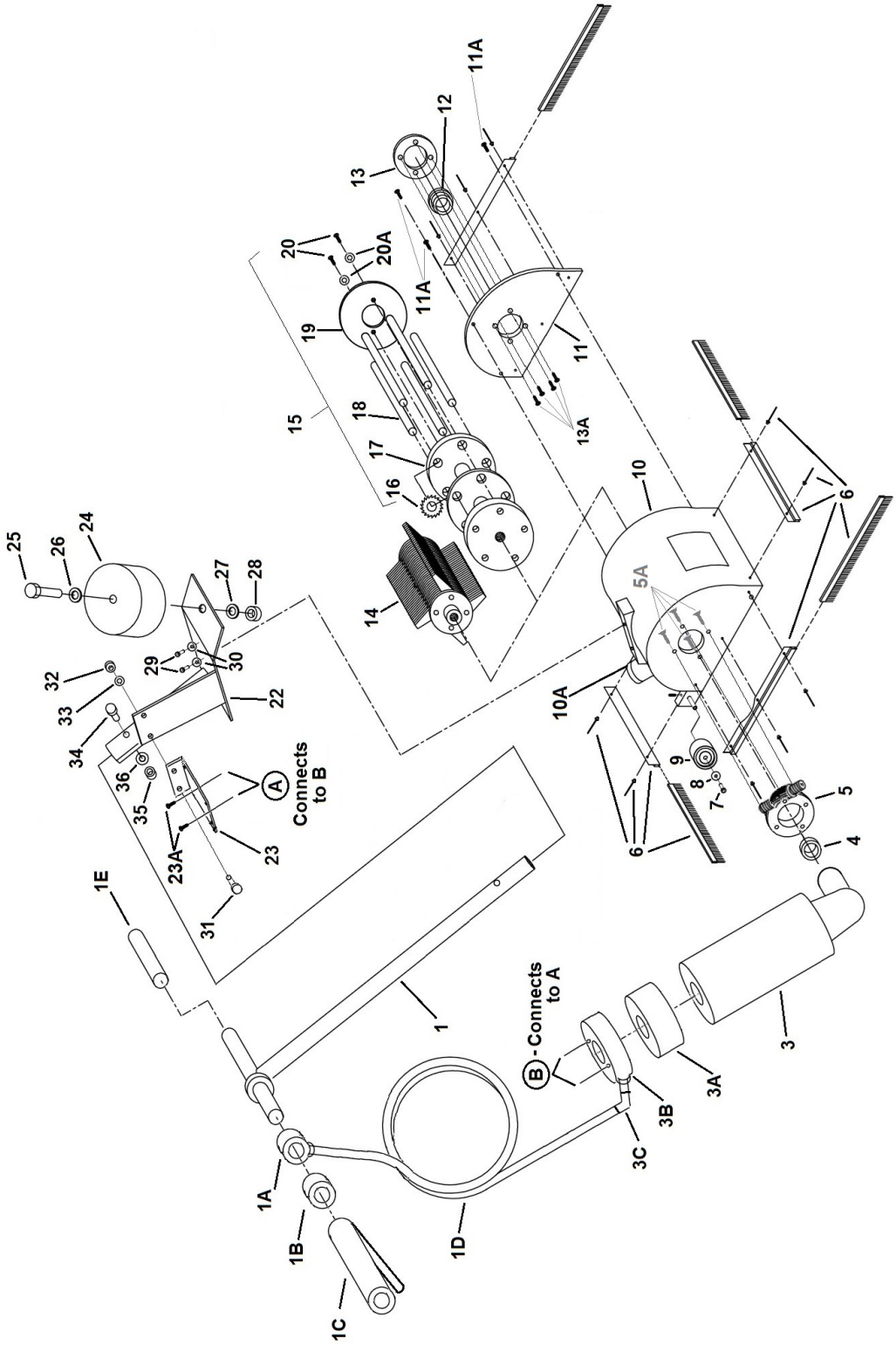
***Warning** (Electric motor)*: Use 1" thin wrench provided to lock the spindle. **Do not** use the spindle lock which is built into the electric motor. Failure to observe this warning may result in the motor spindle lock breaking.

CHAPTER 5 – Troubleshooting

Symptom	Probable Cause	Corrective Action
Excessive Vibration	Hub out of balance due to missing cutters or broken cutter teeth.	Check hub for missing or broken cutters. Replace missing and broken cutters. **NOTE**: The cutter load must be balanced. If mixing new and old cutters results in an unbalanced load, replace all cutters.
Tool Bouncing on Deck	Improper Start/Stop Technique	**Start Tool:** 1) Tip tool back so that hub does not touch surface, 2) Pull trigger to start tool and allow abrasive hub to come up to full speed, 3) Ease tool forward slowly to engage hub with surface. **Stop Tool:** 1) Tip tool back so hub does not touch surface, 2) Release trigger to stop motor and allow hub to come up to complete stop.
Under performing	Inadequate air supply	The tool requires 39cfm at 85psi. A compressor of equal or greater capacity is required. For best results, use a 3/4" hose and 1/2" fittings.
	Worn cutters	Replace cutters.
Cutters breaking	Bearing down hard on tool	The tool's own weight is enough pressure to keep in contact with surface, but no more. Do not bear down.
	Cutters worn beyond useful life	Replace cutters when they become ineffective. (Tooth height <1/8".)
Difficult to remove hub assembly	Jam nut on shaft arbor loosening	Lock jam nut in place with thread-lock compound such as Loctite. 1) Loosen jam nut so that a gap of about 1 /2" is created between nut and motor. 2) Place 1 drop of Loctite on threads closest to motor. 3) Tighten jam nut until nut contacts motor. Snug tight (about 20 ft/pounds).
Spindle shaft breaking	Running cutters over protruding objects	Do not run over protrusions with cutters. Use a hammer hub where protrusions can not be avoided.

CHAPTER 6 – Schematics

6.1 Tool Body and Major Components (Electric)

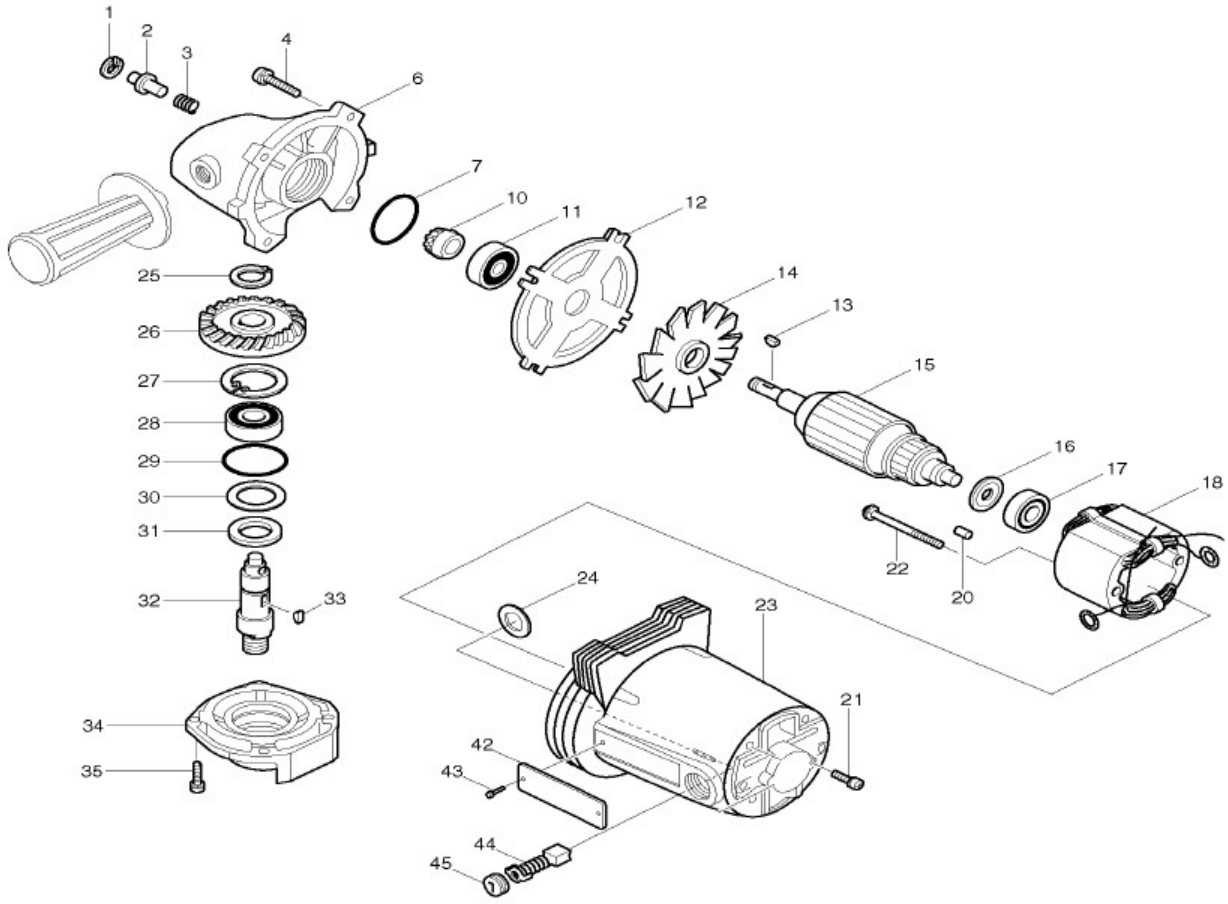


Electric Powered

6.1 Tool Body and Major Components (Electric) – Cont'd.

Ref	Part	Description
1	110.071	Handle assy, complete
2	110.080	Cap, motor
3	110.072	Motor
4	110.055	Nut, jam
5	151.040	Adapter ring, motor arbor
6	110.001	Brush set, includes brush, channel & rivets
7	750.082	Bolt, 1/4"-20x3/4", wheel securing
8	750.098	Washer, star
9	110.097	Wheel
10	110.075	Tool body, dust collector
11	110.091.2	Door, flush guard
11A	750.074	Screw, door securing, 10-32 x 1/2 SHCS, 3 req
12	110.036.2	Bearing,
13	110.045.2	Bearing holder
13A	750.082	Screw, bearing holder, 4 req
14	110.022	Hub, roto-hammer
15	110.032.2	Hub, reloadable cutter, complete, SUFX (includes items 16-20)
16	800.600	Cutter bit
17	110.021	Hub frame
18	110.031	Pin
19	110.046.2	End plate with bearing axle
20	750.113	Screw, cap
21	110.083	Box
22	110.070	Motor mount assy
23	110.0771	Bracket, motor mount
24	110.089	Counter weight
25	750.152	Bolt, 9/16"-18x3-1 /2"
26	750.051	Washer, flat, 9/16"
27	750.051	Washer, flat, 9/16"
28	750.149	Nut, lock, 9/16"-18
29	750.081	Screw, 1/4"-20x3/4"
30	750.117	Washer, flat, 1/4"
31	750.019	Bolt, 3/8" x 1-1/4"
32	750.061	Nut, lock, 3/8"
33	750.050	Washer, flat, 3/8"
34	750.022	Bolt, 3/8" x 2-1/2"
35	750.051	Nut, lock, 3/8"
36	750.050	Washer, flat, 3/8"

6.2 Motor Schematic (Electric)

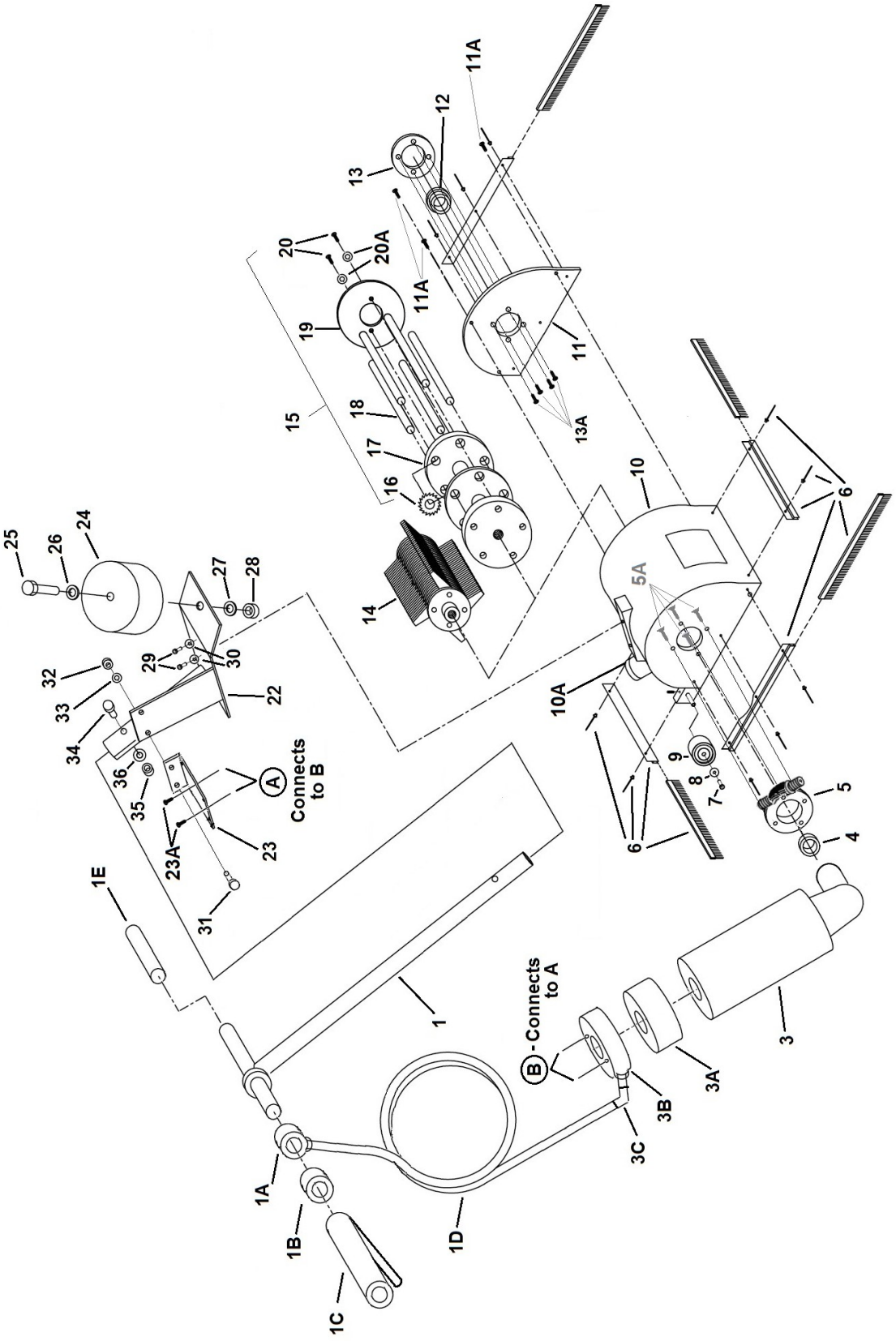


Electric Powered

Ref	Part No	Description	Qty
1	962062-5	Retaining ring R-12, 3612	1
2	256615-3	Shaft lock pin 6, GA7001L	1
3	231037-8	Comp. spring 7, GA7001L	1
4	911236-5	P.H. Screw M5X22, GA7001L	4
6	156781-5	Gear housing, GA7911	1
7	213506-1	O ring 36, GA7911	1
10	221322-7	Spiral B. gear, GA7001L	1
11	211111-8	Ball bearing 6301LLB, 6300LR	1
12	341706-4	Plate, GA7911	1
13	254038-9	Woodruff key 4, HM1500	1
14	241315-8	Fan 100, GA7911	1
15	518423-3	Armature assy, GA7911	1
16	213051-6	Dust seal 10, 2711	1
17	211068-3	B. Bearing 6200LB, 6820V	1
18	524796-4	Field, GA7911	1
20	263002-9	Rubber pin 4, HR2400	1
21	652014-1	P.H. screw M4X8, 2708	1
22	911290-9	P.H. screw M5X65, GA7911	2
23	153563-6	Motor housing CPL,GA7001L	1
23	156780-7	Motor housing, GA7001L	1

Ref	Part No	Description	Qty
24	681002-1	Ins. washer, 2012	2
25	961057-5	Retaining ring S-17, 2711	1
26	221323-5	Spiral B. gear, GA7001L	1
27	962157-4	Retaining ring R-40, GA7911	1
28	211256-2	B. bearing 6203LLB, GA7001L	1
29	213505-3	O ring 40, GA7001L	1
30	253772-8	F. washer 28, GA7001L	1
31	443036-0	Felt ring, GA7001L	1
32	321355-3	Spindle, GA7911	1
33	254038-9	Woodruff key 4, HM1500	1
34	152228-7	Housing W/O Bearing, GA7911	1
35	911226-8	P.H. screw M5X18, GA7911	4
42	854287-4	Name plate, GA7911	1
43	953106-2	Rivet 0-5, HM1500	2
44	181047-4	Carbon brush set 154,5402A	1
44	194986-9	Carbon brush set CB-154, UC3530A	1
45	643650-4	Brush holder cap, 5007MG	2

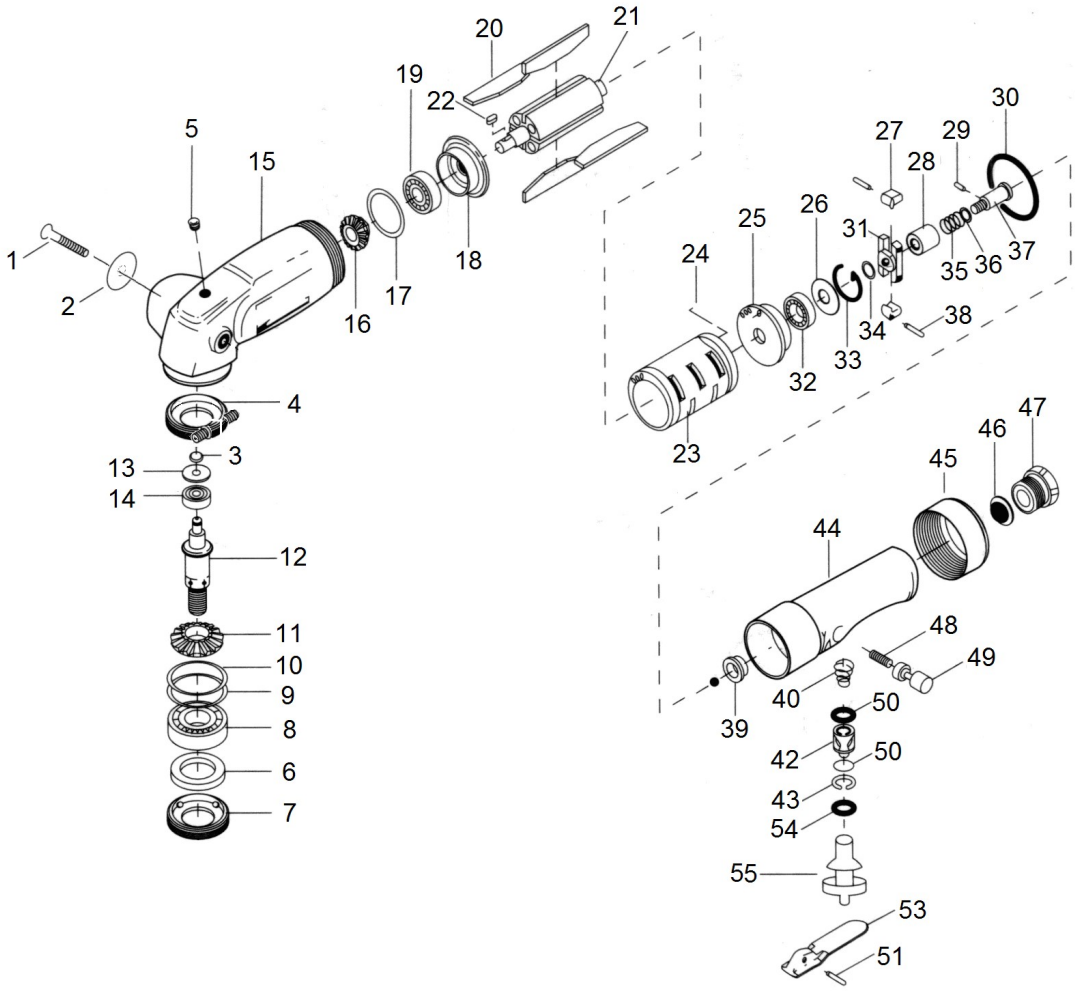
6.3 Tool Body and Major Components (Pneumatic)



6.3 Tool Body and Major Components (Pneumatic) – Cont'd.

Ref	Part	Description
1	110.100	Handle, SUFX pneu
1A	110.101	Handle mount, SUFX pneu, threaded
1B	550.278	Valve body nut
1C	*** ref ***	Throttle valve, from OEM motor (reference only)
1D	110.103	Air hose
1E	151.027	Handle grip, foam, 1.5"
3	110.014	Motor, SUFX, pneu
3A	550.278	Valve body nut
3B	110.099	Intake block, SUFX, pneu
3C	500.078MCH	Swivel, 90deg, 3/8 NPT
4	110.055	Nut, jam
5	110.057	Pinch clamp, mounting
5A	750.082	Screw, pinch-clamp attaching, 1/4 -20 x 3/4", flat head, 3 req
	750.160	Screw, pinch-clamp attaching, 1/4 -20 x 1/2", flat head, 1 req
6	110.001	Brush set, includes brush, channel & rivets
7	750.082	Bolt, 1/4"-20x3/4", wheel securing, flat head
8	750.098	Washer, star
9	110.097	Wheel
10	110.075	Tool body, dust collector
10A	500.2005	Plug, exhaust port
11	110.091.2	Door, flush guard
11A	750.074	Screw, door securing, 10-32 x 1/2 SHCS, 3 req
12	110.036.2	Bearing,
13	110.045.2	Bearing holder
13A	750.082	Screw, bearing holder, 4 req
14	110.022	Hub, roto-hammer
15	110.032.2	Hub, reloadable cutter, complete, SUFX (includes items 16-20)
16	800.600	Cutter bit
17	110.021	Hub frame
18	110.031	Pin
19	110.046.2	End plate with bearing axle
20	110.003.1	Bolt, hex head, zinc-alum, ¼ - 20 x 3/8
20A	550.225	Washer, conical
22	110.070	Motor mount, SUFX, pneu
23	110.104	Bracket, motor mount
23A	750.081	Bolt, 1/4-20 X 3/4 SHCS, 2 req
24	110.089	Counter weight
25	750.152	Bolt, 9/16"-18x3-1 /2"
26	750.051	Washer, flat, 9/16"
27	750.051	Washer, flat, 9/16"
28	750.149	Nut, lock, 9/16"-18
29	750.081	Screw, 1/4"-20x3/4"
30	750.117	Washer, flat, 1/4"
31	750.019	Bolt, 3/8" x 1-1/4", 2 req
32	750.061	Nut, lock, 3/8", 2 req
33	750.050	Washer, flat, 3/8", 2 req
34	750.022	Bolt, 3/8" x 2-1/2"
35	750.051	Nut, lock, 3/8"
36	750.050	Washer, flat, 3/8"

6.4 Motor Schematic (Pneumatic)



Ref	Part	Description	Ref	Part	Description	Ref	Part	Description	Ref	Part	Description
1	110.019	Screw	15	550.261	Casing	29	550.281	Pin	43	550.296	Snap ring
2	110.018	Muffler	16	550.276	Driving gear	30	550.304	O-ring	44	550.260	Handle
3	550.297	Snap ring	17	550.290	Spacer	31	550.267	Governor cage	45	550.278	Valve body nut
4	110.057	Pinch clamp	18	550.273	Front plate	32	550.300	Ball bearing	46	550.258	Filter
5	550.280	Plug	19	550.301	Ball bearing	33	550.295	Snap ring	47	550.255	Air inlet bushing
6	550.305	Felt ring	20	550.272	Blade (4 req)	34	550.287	Spacer	48	550.292	Spring
7	550.262	Casing cover	21	550.271	Rotor	35	550.293	Spring	49	550.259	Safety pin
8	550.302	Ball bearing	22	550.286	Key	36	550.289	Spacer	50	550.303	O-ring (2 req)
9	550.291	Spacer	23	550.270	Cylinder	37	550.266	Governor spindle	51	550.285	Roll pin
10	550.288	Spacer	24	550.283	Roll pin	38	550.284	Roll pin	52	000.000	n/a
11	550.277	Driven gear	25	550.269	Rear end plate	39	550.265	Valve bushing	53	550.279	Lever
12	550.275	Spindle	26	550.274	Spacer	40	550.294	Cone spring	54	550.7020	O-ring
13	550.256	Rear cover	27	550.268	Governor weight	41	000.000	n/a	55	550.4009	Valve
14	550.299	Ball bearing	28	550.264	Governor valve	42	550.263	Valve bushing			