

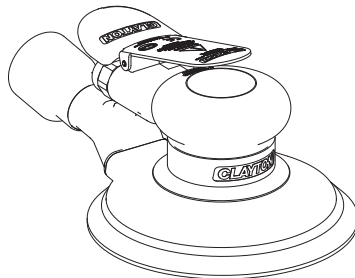
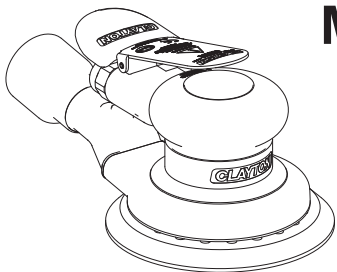
CLAYTON

Dustless Made Simple™

5 in. and 6 in.

10,000 and 12,000 RPM

RANDOM ORBITAL SANDER MANUAL



Declaration of Conformity

Clayton Associates, Inc. 1650 Oak Street Lakewood, NJ 08701 USA
declare on our sole responsibility that the products

5 in. (125 mm) and 6 in. (150 mm) Random Orbital Sanders (See Product "Specifications" Table for particular Model) to which this declaration relates is in conformity with the following standard(s) or other normative document(s) EN ISO 15744:2008. Following the provisions of 89/392/EEC as amended by 91/368/EEC, 93/44/EEC & 93/68/EEC Directives and consolidating Directive 2006/42/EC

Lakewood, NJ 01/16/15

Place and date of issue

James E. Clayton

Name

James E. Clayton
Signature or equivalent marking of authorized person

Operator Instructions

Includes –Parts Page, Parts List, Please Read and Comply, Proper Use of Tool, Work Stations, Putting the Tool Into Service, Operating Instructions and Compressor Layout, Service Tools and Accessories, Service Instructions, Back-Up Pads, Specifications Table and Trouble Shooting Guide.

Important

Read these instructions carefully before installing, operating, servicing or repairing this tool. Keep these instructions in a safe accessible location.



Manufacturer/Supplier

Clayton Associates, Inc.
1650 Oak Street
Lakewood, NJ 08701 USA
TEL (800) 248-8650
www.VacuumSanding.com

Required Personal Safety Equipment



Safety Glasses



Safety Gloves



Breathing Masks



Ear Protection

Recommended Airline

Size - Minimum

3/8 in

10 mm

Recommended Maximum

Hose Length

25 feet

8 meters

Air Pressure

Maximum Working Pressure	90 psig	6.2 bar
Recommended Minimum	NA	NA

Please Read and Comply with

- 1) General Industry Safety & Health Regulations, Part 1910, OSHA 2206, available from: Superintendent of Documents; Government Printing Office; Washington DC 20402
- 2) Safety Code for Portable Air Tools, ANSI B186.1 available from: American National Standards Institute, Inc.; 1430 Broadway; New York, New York 10018
- 3) State and Local Regulations.

Proper Use of Tool

This sander is designed for sanding all types of materials i.e. metals, wood, stone, plastics, etc. using abrasive designed for this purpose. Do not use this sander for any other purpose than that specified without consulting the manufacturer or the manufacturer's authorized supplier. Do not use back-up pads that have a working speed less than 12,000 RPM free speed.

Work Stations

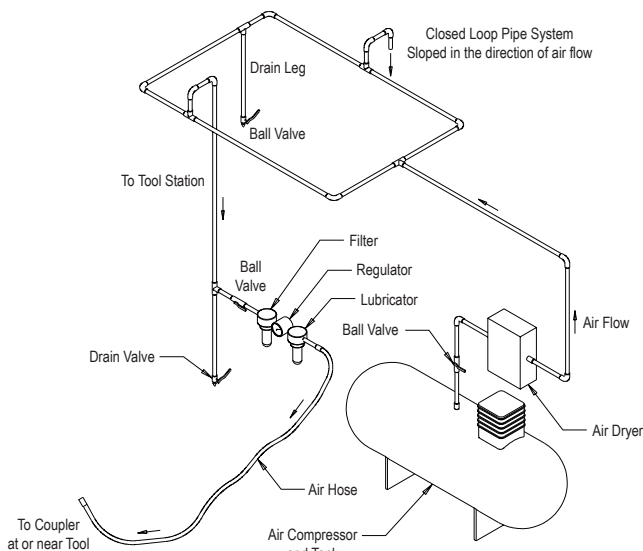
The tool is intended to be operated as a hand held tool. It is always recommended that the tool be used when standing on a solid floor. It can be in any position but before any such use, the operator must be in a secure position having a firm grip and footing and be aware that the sander can develop a torque reaction. See the section "Operating Instructions".

Putting the Tool into Service

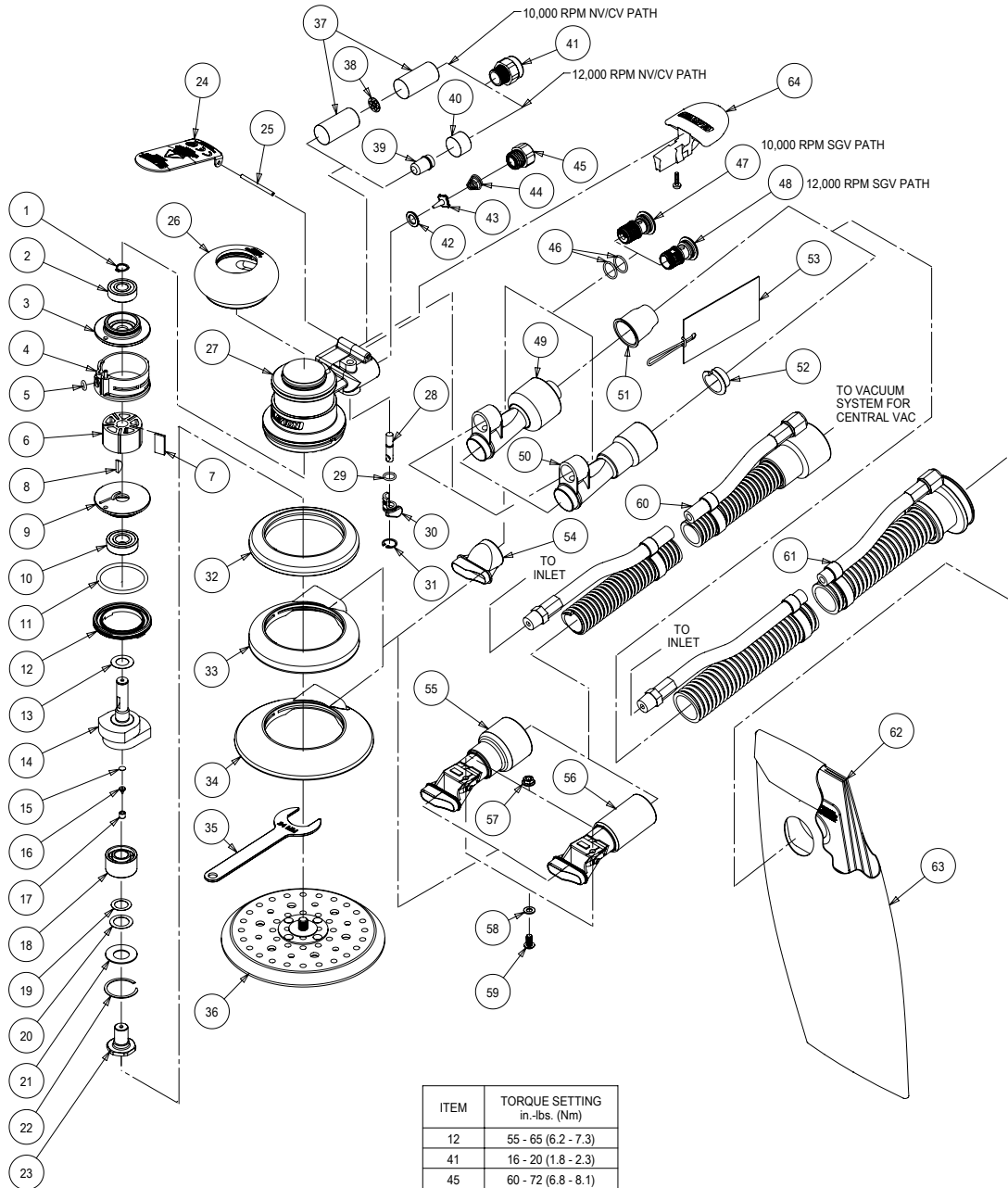
Use a clean lubricated air supply that will give a measured air pressure at the tool of 6.2 bar (90 psig) bar when the tool is running with the lever fully depressed. It is recommended to use an approved 10 mm (3/8 in.) x 8 m (25 ft) maximum length airline. It is recommended that the tool be connected to the air supply as shown in Figure 1. Do not connect the tool to the airline system without incorporating an easy to reach and operate air shut off valve. The air supply should be lubricated. It is strongly recommended that an air filter, regulator and lubricator (FRL) be used as shown in Figure 1 as this will supply clean, lubricated air at the correct pressure to the tool. Details of such equipment can be obtained from your supplier. If such equipment is not used then the tool should be manually lubricated. To manually lubricate the tool, disconnect the airline and put 2 to 3 drops of air tool oil (Clayton P/N 678-20451) into the hose end (inlet) of the machine. Reconnect tool to the air supply and run tool slowly for a few seconds to allow air to circulate the oil. If the tool is used frequently, lubricate it on a daily basis or lubricate it if the tool starts to slow or lose power. It is recommended that the air pressure at the tool is 6.2 bar (90 psig) while the tool is running. The tool can run at lower pressures but never higher than 6.2 bar (90 psig).

Operating Instructions

- 1) Read all instructions before using this tool. All operators must be fully trained in its use and aware of these safety rules. All service and repair must be carried out by trained personnel.
- 2) Make sure the tool is disconnected from the air supply. Select a suitable abrasive and secure it to the back-up pad. Be careful to center the abrasive on the back-up pad.
- 3) Always wear required safety equipment when using this tool.
- 4) When sanding always place the tool on the work then start the tool. Always remove the tool from the work before stopping. This will prevent gouging of the work due to excess speed of the abrasive.
- 5) Always remove the air supply to the sander before fitting, adjusting or removing the abrasive or back-up pad.
- 6) Always adopt a firm footing and/or position and be aware of torque reaction developed by the sander.
- 7) Use only correct spare parts.
- 8) Always ensure that the material to be sanded is firmly fixed to prevent its movement.
- 9) Check hose and fittings regularly for wear. Do not carry the tool by its hose; always be careful to prevent the tool from being started when carrying the tool with the air supply connected.
- 10) Dust can be highly combustible. Vacuum dust collection bag should be cleaned or replaced daily. Cleaning or replacing of bag also assures optimum performance.
- 11) Do not exceed maximum recommended air pressure. Use safety equipment as recommended.
- 12) The tool is not electrically insulated. Do not use where there is a possibility of coming into contact with live electricity, gas pipes, water pipes, etc. Check the area of operation before operation.
- 13) Take care to avoid entanglement with the moving parts of the tool with clothing, ties, hair, cleaning rags, etc. If entangled, it will cause the body to be pulled towards the work and moving parts of the machine and can be very dangerous.
- 14) Keep hands clear of the spinning pad during use.
- 15) If the tool appears to malfunction, remove from use immediately and arrange for service and repair.
- 16) Do not allow the tool to free speed without taking precautions to protect any persons or objects from the loss of the abrasive or pad.



Assembly Drawing



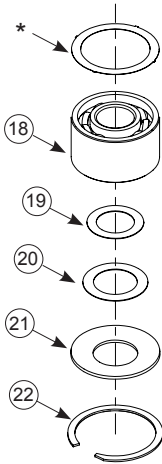
ITEM	TORQUE SETTING in.-lbs. (Nm)
12	55 - 65 (6.2 - 7.3)
41	16 - 20 (1.8 - 2.3)
45	60 - 72 (6.8 - 8.1)
47/48	36 - 48 (4.1 - 5.2)
59	30 - 35 (3.4 - 3.9)

Parts List

Item	Part No.	Description	Qty.
1	673-A0040	RETAINING RING	1
2	673-A0021	BEARING - 2 SHIELDS	1
3	673-A0065	REAR ENDPLATE	1
4	673-A0067	CYLINDER ASSEMBLY	1
5	673-A0042	O-RING	1
6	673-B0005	ROTOR	1
7	673-A0010	VANE	5
8	673-A0041	WOODRUFF KEY	1
9	673-A0064	FRONT ENDPLATE	1
10	673-A0019	BEARING - 2 SHIELDS	1
11	673-A0045	O-RING	1
12	673-A0001	LOCK RING	1
13	673-A2541	FRONT BEARING DUST SHIELD	1
14	673-B0279	5 x 3/32 in ORBIT SHAFT BALANCER	1
	673-B0280	6 x 3/32 in ORBIT SHAFT BALANCER	1
	673-B0277	5 x 3/16 in ORBIT SHAFT BALANCER	1
	673-B0278	6 x 3/16 in ORBIT SHAFT BALANCER	1
	673-B0348	5 x 5/16 in ORBIT SHAFT BALANCER	1
	673-B0334	6 x 5/16 in ORBIT SHAFT BALANCER	1
15	673-A0122	FILTER	1
16	673-A0121	DUCKBILL CHECK VALVE	1
17	673-A0120	VALVE RETAINER	1
18	673-A0938	BEARING - 1 SEAL	1
19	673-A0016	SPACER 0.2 THK	1
20	673-A2542	SPINDLE BEARING DUST SHIELD	1
21	673-A0017	BELLEVILLE WASHER	1
22	673-A0018	RETAINING RING	1
23	673-B0018	SPINDLE	1
24	673-A0340	THROTTLE LEVER FOR 3/32 in ORBIT 10000 RPM ROS	1
	673-A0294	THROTTLE LEVER FOR 3/32 in ORBIT 12000 RPM ROS	1
	673-A0339	THROTTLE LEVER FOR 3/16 in ORBIT 10000 RPM ROS	1
	673-A0287	THROTTLE LEVER FOR 3/16 in ORBIT 12000 RPM ROS	1
	673-A2523	THROTTLE LEVER FOR 5/16 in ORBIT 10000 RPM ROS	1
	673-A1716	THROTTLE LEVER FOR 5/16 in ORBIT 12000 RPM ROS	1
25	673-A0031	LEVER SPRING PIN	1
26	673-A0288	GRIP 2 1/2 in.	OPT
	673-A0289	GRIP 2 3/4 in.	1
	673-A0290	GRIP 3 in.	OPT
27	673-A3026	HOUSING	1
28	673-A0008	VALVE STEM ASSEMBLY	1
29	673-A0043	O-RING	1
30	673-B0014	SPEED CONTROL	1
31	673-A0039	INTERNAL RETAINING RING	1
32	673-B0012	5/6 in. NON-VACUUM SHROUD	1
33	673-C0012	5/6 in. DUSTMASTER SHROUD	1
34	673-C0073	Ø 6 In. SCREEN ABRASIVE ROS DUSTMASTER SHROUD	1
35	673-A0022	24 mm PAD WRENCH	1
36	NA	ONE BACKUP PAD SUPPLIED WITH EACH TOOL (TYPE DETERMINED BY MODEL)	1
37	673-A0032	MUFFLER INSERT (for 10000 RPM Machines)	2
38	673-A0038	MUFFLER PLATE (for 10000 RPM Machines)	1
39	673-A0062	INTERNAL MUFFLER (for 12000 RPM Machines)	1
40	673-A0068	MUFFLER INSERT (for 12000 RPM Machines)	1
41	673-A0166	MUFFLER HOUSING	1
42	673-A0009	VALVE SEAT	1
43	673-A0007	VALVE	1
44	673-A0014	VALVE SPRING	1
45	673-A0013	INLET BUSHING ASSEMBLY	1
46	673-A0044	O-RING	2
47	673-A0722	10000 RPM SGV RETAINER	1
48	673-A0006	12000 RPM SGV RETAINER	1
49	673-A0410	ASSEMBLY FOR 1 in./28 mm HOSE DUSTMASTER SGV SWIVEL EXHAUST FITTING	OPT
50	673-A0409	ASSEMBLY FOR 3/4 in./19 mm HOSE DUSTMASTER SGV SWIVEL EXHAUST FITTING	1
51	673-A0778	1 in./28 mm HOSE SEAL	OPT
52	673-A0854	3/4 in./19 mm HOSE SEAL	1
53	673-A1246	TAG W/ INSTRUCTION FOR 3/4 in./19 mm HOSE SEAL	1
	673-A1247	TAG W/INSTRUCTION FOR 1 in./28 mm HOSE SEAL	OPT
54	673-C0108	DUSTMASTER SGV SKIRT/SHROUD ADAPTER	1
55	673-A0099	ROS DUSTMASTER CV 1 in./28 mm SWIVEL EXHAUST ASSEMBLY	OPT
56	673-A0205	ROS DUSTMASTER CV 3/4 in. SWIVEL EXHAUST ASSEMBLY	1
57	673-A0048	FLANGED NUT	1
58	673-A0047	WASHER	1
59	673-A0769	SCREW	1
60	673-A0300	Ø 3/4 in. VAC HOSE TO Ø 3/4 in. x 1 in./28 mm ADAPTER COUPLING AND AIRLINE ASSEMBLY	OPT
	673-A0392	Ø 1 in. VAC HOSE TO Ø 1 in./28 mm x 1 1/2 in. ADAPTOR COUPLING AND AIRLINE ASSEMBLY	OPT
61	673-A0411	Ø 3/4 in. VAC HOSE TO DOUBLE BAG FITTING AND AIRLINE ASSEMBLY	1
	673-A0412	Ø 1 in. VAC HOSE TO DOUBLE BAG FITTING AND AIRLINE ASSEMBLY	OPT
62	673-C0109	VACUUM BAG INSERT	1
63	673-C0110	VACUUM BAG	1
64	673-M0201	PALM REST (comes with screw)	1

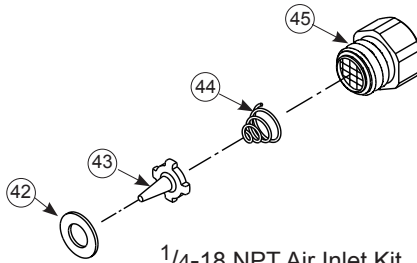
Sander Spare Parts Kits

In addition to the kits below, please see our complete General Rebuild Kit P/N 673-A3062 on page 5.

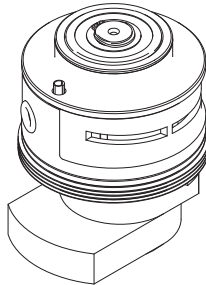


ROS Spindle Bearing Kit
P/N 673-A1164

*Shim included in kit but not used on balancers with a "+" symbol



1/4-18 NPT Air Inlet Kit
P/N 673-A0431



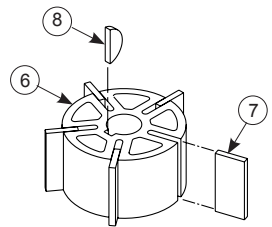
Drop-in Motor 5x³/16
P/N 673-B0135

Drop-in Motor 6x³/16
P/N 673-B0136

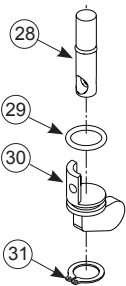
Drop-in Motor 5x⁵/16
P/N 673-B0501

Drop-in Motor 6x⁵/16
P/N 673-B0502

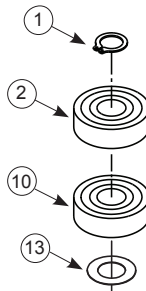
(Drop-in motor includes items 1-23)



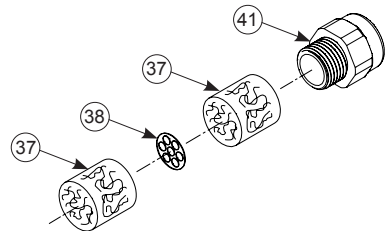
Rotor, Vanes and Key Kit
P/N 673-A0063



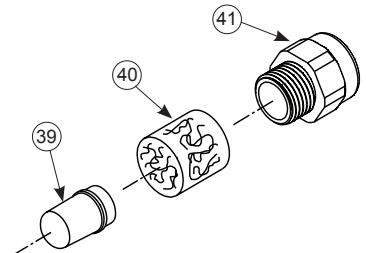
Speed Valve Kit
P/N 673-A0812



Endplate Bearing Kit
P/N 673-A0434



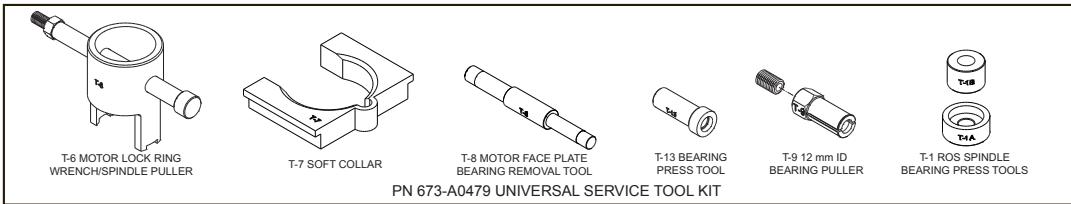
10,000 RPM Muffler Kit
P/N 673-A0095



12,000 RPM Muffler Kit
P/N 673-A0096

Clayton™ Service Tools and Accessories

When a Clayton ROS needs to be serviced, we offer a tool kit to make the disassembly/assembly fast and easy. The Service Tools are highly recommended for use with the Overhaul Service Kit. NOTICE: To receive any expressed or implied warranty, the tool must be repaired by an authorized Clayton Service Center. The 5 in. and 6 in. Random Orbital Sanders Service Instructions section provided are for use after completion of the warranty period.



Clayton™ General Rebuild Kit

The Clayton General Rebuild Kit PN 673-A3062 contains all the replacement parts that naturally wear over time and a straightforward manual to make servicing a Clayton sander simple. Overhauling the Random Orbital Sander can be made even easier with the use of the above Service Tools. The Service Tools also reduce the chance of improper assembly.

PN 673-A3062 Clayton General Rebuild Kit Contents

Item	Part No.	Description	Qty.
1	673-A0040	External Retaining Ring	1
2	673-A0021	Bearing – 2 Shields	1
5	673-A0042	O-Ring	1
6	673-B0005	Rotor	1
7	673-A0010	Vanes	5
8	673-A0041	Key	1
10	673-A0019	Bearing	1
*	673-A0937	Shim	4
18	673-A0938	Bearing	1
19	673-A0016	Spacer	1
28	673-A0008	Valve Stem Assembly	1
29	673-A0043	O-Ring	1
31	673-A0039	Internal Retaining Ring	1
37	673-A0032	Muffler (10,000 rpm)	2
39	673-A0062	Bronze Muffler (12,000 rpm)	1
40	673-A0068	Muffler (12,000 rpm)	1
41	673-A0166	Muffler Housing	1
42	673-A0009	Valve Seat	1
43	673-A0007	Valve	1
44	673-A0014	Valve Spring	1
N/A	673-A3058	5 in./ 6 in. ROS Service Instructions	1

*Shim included in kit but not used on balancers with a "+" symbol

Service Instructions

NOTICE: To receive any expressed or implied warranty, the tool must be repaired by an authorized Service Center. The 5 in. (127 mm.) and 6 in. (150 mm) Random Orbital Sander Service Instructions section provided is for use after completion of the warranty period.

DISASSEMBLY INSTRUCTIONS

Changing Grips:

1. The Grip has two "tabs" that wrap around the body of the sander under the inlet and exhaust. Use a small screwdriver to pick out one of the "tabs" of the Grip, and then continue to go underneath the Grip with the screwdriver and pry the Grip off of sander. To install a new Grip, hold the Grip by the tabs making them face outward, align the Grip and slide it under the Throttle Lever then press the Grip down until it seats onto the top of the sander. Make sure the two "tabs" seat under the inlet and exhaust.

Motor Disassembly:

1. Lightly secure the tool in a vise using the T-7 Soft Collar or padded jaw vice and remove the pad with the 24 mm Pad Wrench then remove the Shroud or Skirt (whichever applies).
2. Remove the Lock Ring with the T-6 Motor Lock Ring Wrench/Spindle Puller Tool. The motor assembly can now be lifted out of the Housing.
3. Secure the motor assembly by clamping the 5 in. or 6 in. (125 or 150 mm) Shaft Balancer in a padded jaw vise and remove the Retaining Ring and the O-Ring from the Cylinder.
4. Remove the Rear Endplate. This may require supporting the Rear Endplate with a Bearing Separator and lightly pressing the shaft through the Bearing and Rear Endplate. Remove Cylinder and the Vanes and Rotor Set from the shaft of the Shaft Balancer. Remove the Key then press off the Front Endplate (with Bearing), O-Ring and the Lock Ring. It may be necessary to remove the Bearing with a Bearing Separator if it came out of the Front Endplate and stuck to the shaft of the Shaft Balancer.
5. Remove and discard Dust Shield from the Shaft Balancer.
6. Remove the Bearing(s) from the Endplates by using the T-8 Bearing Removal Tool to press out the Bearings.

Shaft Balancer and Spindle Disassembly:

1. Grip the shaft end of the Shaft Balancer in a padded vise. With a thin screwdriver pick out the slotted end of the Retaining Ring and peel out.
2. Screw the threaded end of the T-6 Motor Lock Ring Wrench/Spindle Puller Tool into the Spindle until hand tight. Apply a gentle heat from a propane torch or hot air gun to the large end of the Balancer Shaft until it is about 212° F (100° C) to soften the adhesive. Do not over heat. Remove the Spindle assembly by using the slider to give sharp outward blows to the Spindle. Allow the parts to cool so they are safe to handle. Follow one of the appropriate directions below:

- If the Bearing come out with the spindle, use a small Bearing Separator to remove it. Move onto step 3.
- If the Bearing stays in the Shaft Balancer. Follow steps A - D below.

Procedure for removal of the Bearings from the Shaft Balancer:

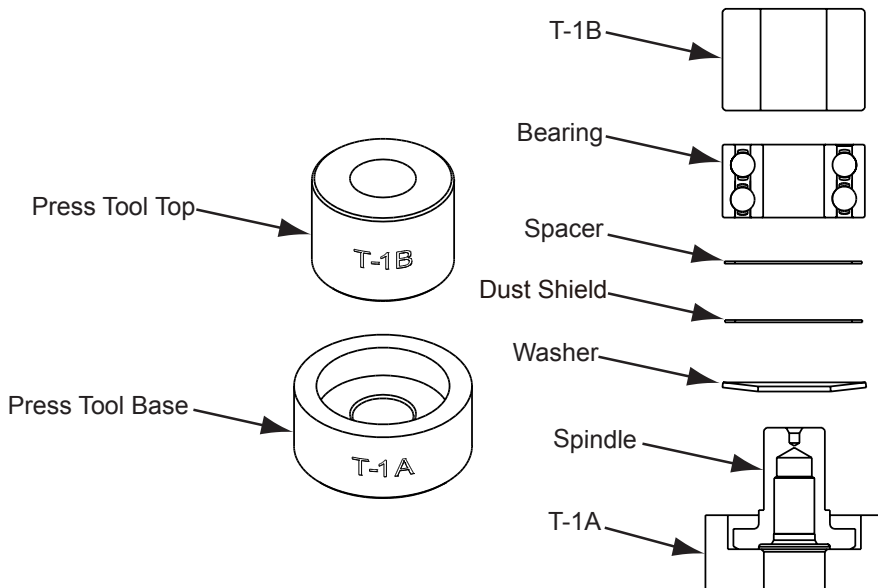
- Position the Set Screw in the top of the T-9 12 mm ID Bearing Puller.
 - Make sure the Retaining Ring is removed, then press the Bearing Puller into the I.D. of Bearing until the Bearing Puller hits the bottom of the Shaft Balancer.
 - Thread the Set Screw down until it hits the bottom of the Shaft Balancer or becomes very tight. Grip the shaft end of the Shaft Balancer in a padded vise.
 - Screw the threaded end of the T-6 Motor Lock Ring Wrench/Spindle Puller Tool into the Bearing Puller until hand tight. Apply a gentle heat from a propane torch or hot air gun to the large end of the Shaft Balancer to re-heat it until it is about 212° F (100° C) to soften the adhesive. Do not over heat. Remove the Bearing by using the slider to give sharp outward blows to the Bearing Puller. Allow the Bearing Puller, Bearing and Shaft Balancer to cool. After cooling, unthread the T-6 Motor Lock Ring Wrench/Spindle Puller Tool from the Bearing Puller. Back off the set screw. Secure the Bearing Puller and Bearings in a Bearing Separator and press out the Bearing Puller.
- The AirSHIELD™ components are held in place by the light press fit of the Retainer. These components can be damaged during removal and may need to be replaced if removed. To remove the Retainer, use an O-ring pick or a #8 sheet metal screw to grip and pull out the Retainer. Remove the Valve and Filter from the bore in the Shaft Balancer. If the Retainer and Valve were not damaged, they can be reused. However, the filter should

be replaced on re-assembly.

- Remove the bearing from the Spindle. Remove the Spacer, Dust Shield and Washer from the Spindle. Discard Dust Shield.

Housing Disassembly:

- For Non-Vacuum (NV) and Central Vacuum (CV) machines follow the steps outlined in Section I below. For Self Generated Vacuum (SGV) machines follow the steps outlined in Section III.
- This section is for NV and CV machines.
 - Remove the screw and Palm Rest from the Housing.
 - Unscrew the Muffler Housing from the Housing.
 - Remove the Bronze Muffler from the Muffler Housing and remove the Muffler insert from the cavity of the Muffler Housing.
 - For NV machines move onto D. For CV machines move onto Section II.
 - Remove the NV Shroud. Move onto Step 2.
- This section continued from Section I for CV Exhaust machines:
 - Remove the screw and Palm Rest from the Housing.
 - Remove the Screw, Washer and Nut.
 - Remove the Ø 1 in. (28 mm) SuperVAC™ CV Swivel Exhaust Assembly or the Ø 3/4 in. (19 mm) SuperVAC™ CV Swivel Exhaust Assembly from the SuperVAC™ Shroud or SuperVAC™ Screen Abrasive Shroud.
 - Remove the SuperVAC™ Shroud or SuperVAC™ Screen Abrasive Shroud from the Housing. Move onto step 2.
- This section is for SGV Exhaust machines:
 - Unscrew the SGV Retainer with an 8 mm hex wrench.
 - Remove the Ø 1 in. (28 mm) Hose SGV Swivel Exhaust Assembly from the Housing and SuperVAC™ SGV Skirt Adapter or SuperVAC™ SGV Shroud



Adapter.

- C) Pull the SGV Retainer out of the bore of the Swivel Exhaust Assembly and remove the two O-rings.
- D) Remove the Vacuum Shroud or Vacuum Skirt from the Housing. Move onto step 2.
2. Place the Speed Control to the midway position and remove the Retaining Ring. NOTE: If the machine is a vacuum model, the vacuum exhaust must be removed (see Section 1 above for removal) before the Retaining Ring can be removed with lock ring pliers. The Speed Control will now pull straight out. Remove the O-ring.
3. Unscrew the Inlet Bushing Assembly from the Housing. Remove the Valve Spring, Valve, Valve Seat, Valve Stem and O-Ring.
4. Press out the Spring Pin from the Housing and remove the Throttle Lever.

ASSEMBLY INSTRUCTIONS

NOTE: All assembly must be done with clean dry parts and all bearings are to be pressed in place by the correct tools and procedures as outlined by the bearing manufacturers.

Housing Assembly:

1. Install Throttle Lever into Housing with the Spring Pin.
2. Lightly grease the O-ring and place it on the Speed Control. Install Valve Stem, O-ring (cleaned and lightly greased) and insert the Speed control into the Housing in the midway position. Install the Retaining Ring. CAUTION: Make sure the Retaining Ring is completely snapped into groove in the Housing.
3. Install the Valve Seat, the Valve and the Valve Spring. Coat the threads of the Bushing Assembly with 1 or 2 drops of Loctite® 222 or equivalent non-permanent pipe thread sealant. Screw the assembly into the Housing. Torque to 60 in/lbs (6.77 Nm.)
4. For NV and CV machines follow the steps outlined in Section I below. For SGV machines follow the steps in Section III.

I. This section is for CV and NV

- A) Place a clean felt Muffler all-the-way into the chamber of the Muffler Housing. Press the Bronze Muffler onto the Muffler Housing.
- B) Screw the Muffler Housing assembly into the Housing until hand tight. Use a 21 mm socket/torque wrench combination to torque the Muffler Housing. Torque to 20 in/lbs (2.25 Nm). For NV machines move onto C. For CV machines move onto Section II.
- C) Install the Non-Vacuum Shroud onto the Housing by working the shroud over and around the bottom of the housing flanges. Make sure the line up slots (on the Housing) and tabs (on the Shroud) are engaged. Move onto the "Spindle, AirSHIELD™ and Shaft Balancer Assembly" Section.
- D) Install Palm Rest and tighten screw.

II. This section continued from Section I for CV Exhaust machines:

- A) For 5 and 6 in. (125 and 150 mm) machines:
Install the 5 or 6 in. (125 or 150 mm.) SuperVAC™ Shroud or 6 in. (150 mm) SuperVac™ Screen Abrasive Shroud onto the Housing by working the shroud over and around the bottom of the housing flanges. Slide the inlet end of the Ø 1 in. (28 mm) SuperVAC™ CV Swivel Exhaust Assembly or the Ø 3/4 in. (19 mm) SuperVAC™ CV Swivel Exhaust Assembly into the exhaust port of the SuperVAC™ Shroud or SuperVAC™ Screen Abrasive Shroud until it hits the stop on the SuperVAC™ Swivel Exhaust Assembly.

NOTE: For installation of Shrouds and Skirts make sure the line up slots (on the Housing) and tabs (on the Shroud or Skirt) are engaged. Make sure that the key on the Swivel Exhaust Assembly bracket is aligned and engaged with the keyway on the Housing.

- B) Place the Washer over the Screw. Thread the screw into the mounting hole of the Swivel Exhaust Assembly and Housing until the end of the screw is flush with the inside surface of the Housing. Place the Nut into the cavity of the Housing and thread the Screw into the Nut until tight. Move onto the "Spindle, AirSHIELD™ and Shaft Balancer Assembly" Section.

III. This section for SGV Exhaust machines:

- A) Install the SuperVAC™ Shroud or SuperVAC™ SGV Vacuum Skirt onto the Housing by working the shroud or skirt over and around the bottom of the housing flanges. Make sure the line up slots (on the Housing) and tabs (on the Shroud or Skirt) are engaged.
- B) Attach the SuperVAC™ SGV Skirt Adapter or SuperVac™ SGV Shroud Adapter to the exhaust port of the SuperVAC™ Shroud or SuperVAC™ SGV Skirt.
- C) Clean and lightly grease the two O-rings and place them in the two grooves in the SGV Retainer.
- D) Put the SGV Retainer into the mounting hole of the Ø 1 in. (28 mm) Hose SGV Swivel Exhaust Assembly.
- E) Push the Ø 1 in. (28 mm) Hose SGV Swivel Exhaust Assembly into the exhaust port of the SuperVAC™ SGV Skirt Adapter or SuperVAC™ SGV Shroud Adapter. Screw the SGV Retainer into the threaded exhaust port on the Housing with an 8 mm Hex Wrench. Torque to 45 in/lbs (5.08 Nm.).
- F) Install Palm Rest and tighten screw.

Spindle, AirSHIELD™ and Shaft Balancer Assembly:

1. Place the Washer on the Spindle shaft with the curve of the Washer facing up so that the outside diameter of the Washer will contact the outer diameter of the Bearing. Place the Dust Shield onto the Spindle shaft. Place the Spacer onto the shoulder of the Spindle. Note: Be sure that the Dust Shield is past the shoulder where Spacer rests. Place the Bearing on the Spindle with the seal side toward the Washer. Press onto Spindle using the T-1B Spindle Bearing Press Tool (see figure) until seated at bottom.
2. Insert Shim with tangs into the bottom of Spindle Bore of the Shaft Balancer. (Do not use this shim if Shaft Balancer text shows a + symbol.)
3. When the Spindle Assembly is done correctly, the Bearing will rotate freely but not loosely.
4. Take the new Filter and center it on the small bore that the original Filter was in before removal. With a small diameter screwdriver or flat-ended rod, press the Filter into the bore until it is flat in the bottom of the bore. Place the Valve into the bore so it is oriented correctly, then press the Retainer into the bore until it is flush with the bottom of the Bearing bore.
5. Apply a pin head size drop of #271 Loctite® or equivalent to the outside diameter of each of the bearings on the spindle assembly. Spread the drop of bearing locker around the bearing until distributed evenly. CAUTION: Only a very small amount of bearing locker is needed to prevent rotation of the bearing OD. Any excess will make future removal difficult. Place the Spindle Assembly into the bore of the Shaft Balancer and secure with the Retaining Ring. CAUTION: Make sure that the

Retaining Ring is completely snapped into the groove in the Balancer Shaft. Allow the adhesive to cure.

Motor Assembly:

1. Place the Dust Shield onto the shaft of the Shaft Balancer.
2. Use the larger end of the T-13 Bearing Press Sleeve to press the front Bearing (with 2 Shields) onto the shaft of the Shaft Balancer.
3. Lightly grease the O-Ring and place it into the Lock Ring.
4. Place the Lock Ring with O-Ring onto the Front Endplate with the O-Ring towards the Front Endplate. While holding the Lock Ring and Front Endplate, slide the Front Endplate with the bearing pocket facing down onto the Motor Shaft. Gently press the Front Endplate onto the Bearing using the larger end of the T-13 Bearing Press Sleeve until the Front Bearing is seated in the bearing pocket of the Endplate. **CAUTION:** Only press just enough to seat the bearing into the pocket. Over-pressing can damage the bearing.
5. Place the Key into the groove on the Shaft Balancer. Place the Rotor on the Shaft Balancer, making sure that it is a tight slip fit.
6. Oil the five Vanes with a quality pneumatic tool oil and place them in the slots of the Rotor. Place the Cylinder Assembly over the Rotor with the short end of the Spring Pin engaging the blind hole in the Front Endplate. **NOTE:** The Spring Pin must project .060 in. (1.5 mm) above the flanged side of the Cylinder.
7. Press fit the rear Bearing (2 shields) into the Rear Endplate with the T-1B Bearing Press Tool. Make sure the T-1B Press Tool is centered on the O.D. of the outer race. Lightly press fit the Rear Endplate and Bearing Assembly over the Shaft Balancer using the small end of the T-13 Bearing Press Sleeve. The sleeve should press only the inner race of the bearing. **IMPORTANT:** The Rear Endplate and Bearing Assembly is pressed correctly when the Cylinder is squeezed just enough between the Endplates to stop it from moving freely under its own weight when the shaft is held horizontal, but be able to slide between the Endplates with a very light force. If the assembly is pressed to tightly the motor will not run freely. If the pressed assembly is to loose, the motor will not turn freely after assembly in the Housing. Secure the assembly by placing the Retaining Ring in the groove of the Shaft Balancer. **CAUTION:** The Retaining Ring must be placed so that the middle and two ends of the hoop touch the Bearing first. Both raised center portions must be securely "snapped" into the groove in the Shaft Balancer by pushing on the curved portions with a small screwdriver.
8. Lightly grease the O-Ring and place in the air inlet of the Cylinder Assembly.
9. Lightly grease or oil the inside diameter of the Housing, line up the Spring Pin with the marking on the Housing and slide the Motor Assembly into the Housing. Make sure the Spring Pin engages the pocket in Housing.
10. Carefully screw the Lock Ring into the Housing with the T-6 Motor Lock Ring Wrench/Spindle Puller Tool. Torque to 60 in/lbs (6.77 Nm.) **NOTE:** A simple technique to assure first thread engagement is to turn the lock ring counter clockwise with the T-6 Motor Lock Ring Wrench/Spindle Puller while applying light pressure. You will hear and feel a click when the lead thread of the lock ring drops into the lead thread of the housing.
11. Spin on a new Pad and hand tighten it using a 24 mm Pad Wrench.

Testing:

Place 3 drops of quality pneumatic air tool oil directly into the motor inlet and connect it to a 90 psig (6.2 bar) air supply. A 12,000 RPM tool should run between 11,500 to 12,500 RPM when the air pressure is 90 psig (6.2 bar) at the inlet of the tool while the tool is running at free speed. This free speed will be about 500 RPM to 1,000 RPM less when a Vacuum or Hook Face Pad is used because of wind resistance. This will not affect performance when sanding.

Loctite® is a registered trademark of the Loctite Corp.

Clayton™ Back-Up Pads

Clayton back-up pads are perfectly mated for use on the Clayton ROS. Constructed from premium, industrial-quality materials and featuring a riveted fiberglass and steel hub with molded urethane, their durability and precise construction are the ideal complement to the performance of the Clayton ROS.

Description	Part #
Clayton 5" tapered edge, vac, vinyl face	672-511S
Clayton 5" low profile, screen vac, j-hook face	672-511J
Clayton 6" tapered edge, vac, vinyl face	672-611S
Clayton 6" low profile, screen vac, j-hook face	672-611J
Clayton 5" Protector Pads	672-50JP
Clayton 6" Protector Pads	672-60JP
Clayton 5" Interface Pads	672-52JP
Clayton 6" Interface Pads	672-62JP

Specifications

General Specifications				
Size	5" 3/16 orbit	5" 5/16 orbit	6" 3/16 orbit	6" 5/16 orbit
Sound Level (EN ISO 15744:2008)	*76 dBA	*77 dBA	*77 dBA	*75 dBA
Power	.28 hp	.28 hp	.28 hp	.28 hp
Speed RPM	12,000	12,000	12,000	12,000
Vibration (EN ISO 8662-8:1997; EN ISO 28662-1:1992)	*3.1 m/s ²	*2.4 m/s ²	*3.1 m/s ²	*3.5 m/s ²
*Uncertainty K m/s ²	1.6	1.2	1.6	1.8

Specifications subject to change without prior notice.

*The values stated in the table are from laboratory testing in conformity with stated codes and standards and are not sufficient for risk evaluation. Values measured in a particular work place may be higher than the declared values. The actual exposure values and amount of risk or harm experienced to an individual is unique to each situation and depends upon the surrounding environment, the way in which the individual works, the particular material being worked, work station design as well as upon the exposure time and the physical condition of the user. Clayton cannot be held responsible for the consequences of using declared values instead of actual exposure values for any individual risk assessment.

Further occupational health and safety information can be obtained from the following websites:

<http://europe.osha.eu.int> (Europe)
<http://www.osha.gov> (USA)

Troubleshooting Guide

Symptom	Possible Cause	Solution
Low Power and/or Low Free Speed	Insufficient Air Pressure	Check air line pressure at the Inlet of the Sander while the tool is running at free speed. It must be 90 psig (6.2 Bar).
	Clogged Muffler(s)	See the "Housing Disassembly" section for Muffler removal. The Muffler can be back flushed with a clean, suitable cleaning solution until all contaminants and obstructions have been removed. If the Muffler can not be properly cleaned then replace it. Replace Muffler Insert (See the "Housing Assembly" Section).
	Plugged Inlet Screen	Clean the Inlet Screen with a clean, suitable cleaning solution. If Screen does not come clean replace it.
	One or more Worn or Broken Vanes	Install a complete set of new Vanes (all vanes must be replaced for proper operation). Coat all vanes with quality pneumatic tool oil. See "Motor Disassembly" and "Motor Assembly".
	Internal air leakage in the Motor Housing indicated by higher than normal air consumption and lower than normal speed	Check for proper Motor alignment and Lock Ring engagement. Check for damaged O-Ring in Lock Ring groove. Remove Motor Assembly and Re-Install the Motor Assembly. See "Motor Disassembly" and "Motor Assembly".
	Motor Parts Worn	Overhaul Motor. Contact authorized Service Center.
	Worn or broken Spindle Bearings	Replace the worn or broken Bearings. See "Shaft Balancer and Spindle Disassembly" and "Spindle Bearings, AirSHIELD™ and Shaft Balancer Assembly".
Air leakage through the Speed Control and/or Valve Stem.	Dirty, broken or bent Valve Spring, Valve or Valve Seat	Disassemble, inspect and replace worn or damaged parts. See Steps 2 and 3 in "Housing Disassembly" and Steps 2 and 3 in "Housing Assembly".
Vibration/Rough Operation	Incorrect Pad	Only use Pad Sizes and Weights designed for the machine.
	Addition of interface pad or other material	Only use abrasive and/or interface designed for the machine. Do not attach anything to the Sanders Pad face that was not specifically designed to be used with the Pad and Sander.
	Improper lubrication or buildup of foreign debris.	Disassemble the Sander and clean in a suitable cleaning solution. Assemble the Sander.
	Worn or broken Rear or Front Motor Bearing(s)	Replace the worn or broken Bearings. See "Motor Disassembly" and "Motor Assembly".
	For vacuum machines it is possible to have too much vacuum while sanding on a flat surface causing the pad to stick to the sanding surface	For SGV machines add extra washer(s) to the pad spindle to increase the gap between the pad and shroud. For CV machines reduce vacuum through the vacuum system and/or add extra washer(s) to the pad.

