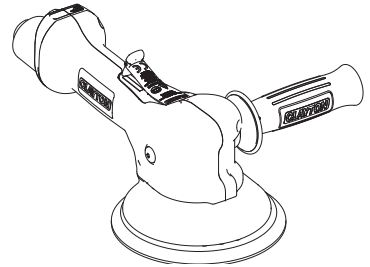
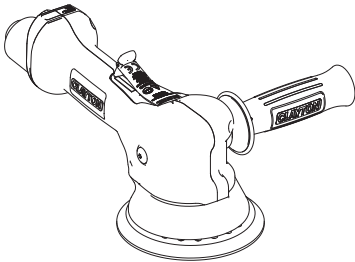


CLAYTON

Dustless Made Simple™

5 in. (125 mm) and 6 in. (150 mm) TwoHAND™ 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) TwoHAND™ 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 5/27/10

Place and date of issue

James E. Clayton

Name

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

- 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".

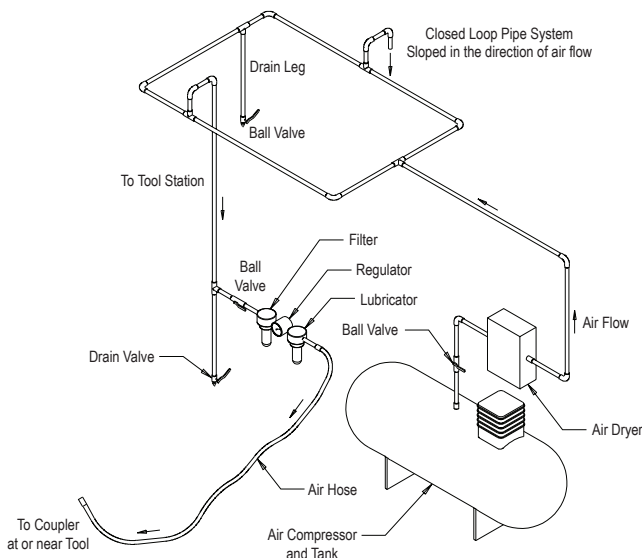
Operating Instructions

- 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 and 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.

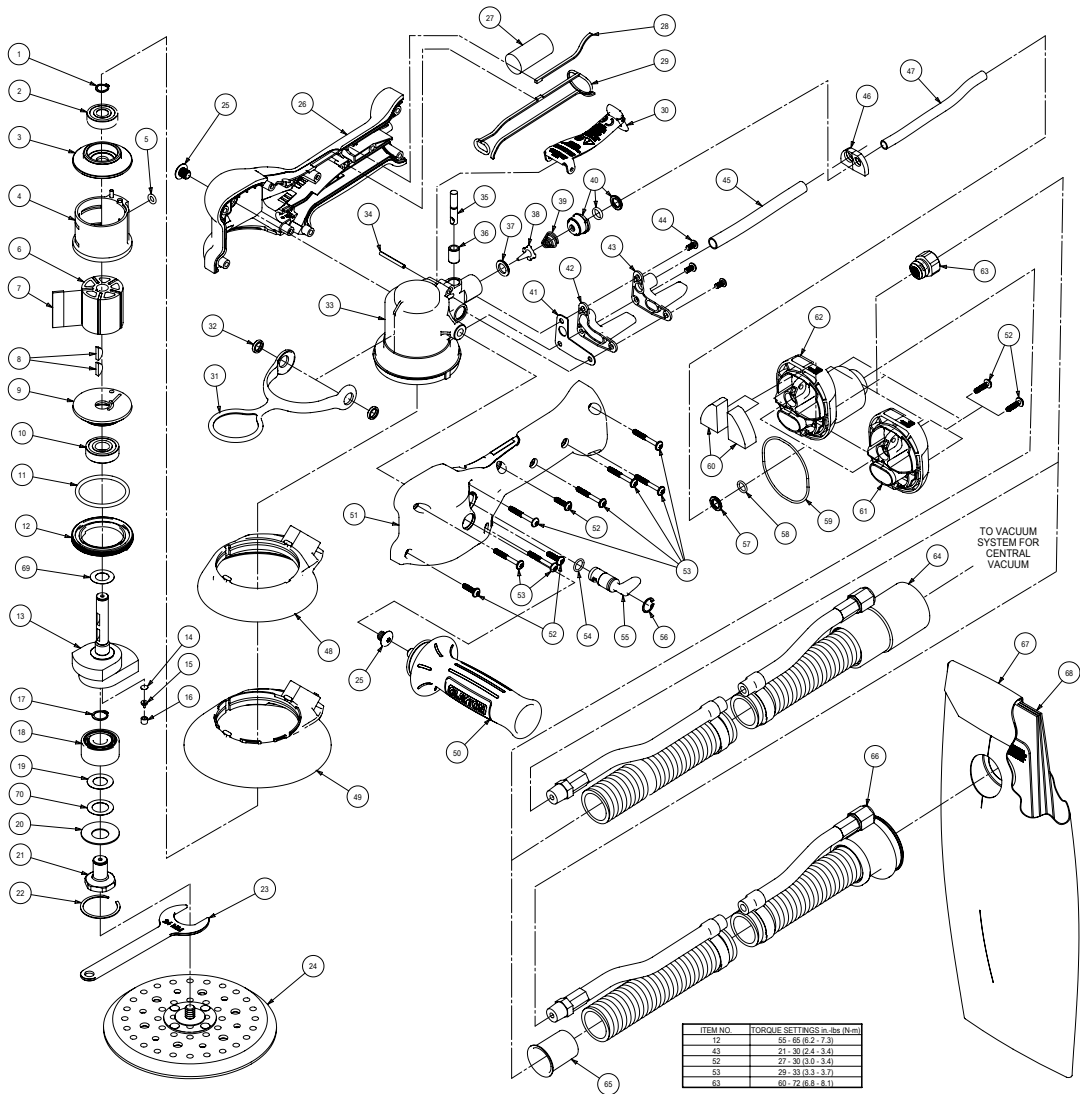
Use a clean lubricated air supply that will give a measured air pressure at the tool of 90 psig (6.2 bar) when the tool is running with the lever fully depressed. It is recommended to use an approved 3/8 in. (10 mm) x 25 ft (8 m) maximum length airline. It is recommended that the tool be connected to 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 90 psig (6.2 bar) while the tool is running. The tool can run at lower pressures but never higher than 90 psig (6.2 bar).



Assembly Drawing

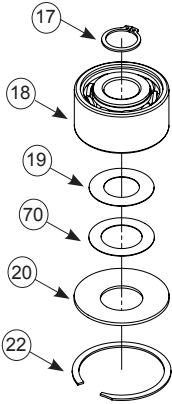


Parts List

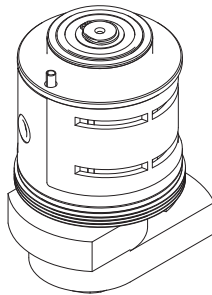
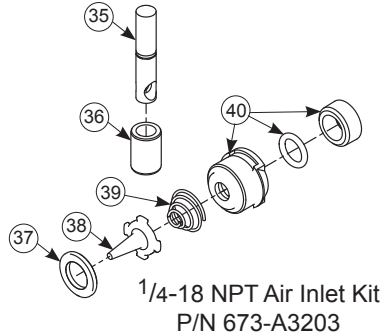
Item No.	Part No.	Description	Qty.
1	673-A0040	EXTERNAL RETAINING RING	1
2	673-A0021	BEARING - 2 SHIELDS	1
3	673-B0017	REAR ENDPLATE	1
4	673-A0441	CYLINDER ASSEMBLY	1
5	673-A0042	O-RING	1
6	673-B0118	ROTOR	1
7	673-A0445	VANE	5
8	673-A0041	WOODRUFF KEY	2
9	673-B0016	FRONT ENDPLATE	1
10	673-A0019	BEARING - 2 SHIELDS	1
11	673-A0045	O-RING	1
12	673-A0001	LOCK RING	1
13	673-B0206	125 x 2.5 mm (5 x 3/32 in.) ORBIT ROS AirSHIELD™ SHAFT BALANCER	1
	673-B0207	125 x 5.0 mm (5 x 3/16 in.) ORBIT ROS AirSHIELD™ SHAFT BALANCER	1
	673-B0189	125 x 10 mm (5 x 3/8 in.) ORBIT ROS AirSHIELD™ SHAFT BALANCER	1
	673-B0205	150 x 2.5 mm (6 x 3/32 in.) ORBIT ROS AirSHIELD™ SHAFT BALANCER	1
	673-B0187	150 x 5.0 mm (6 x 3/16 in.) ORBIT ROS AirSHIELD™ SHAFT BALANCER	1
	673-B0188	150 X 10 mm (6 x 3/8 in.) ORBIT ROS AirSHIELD™ SHAFT BALANCER	1
14	673-A0122	FILTER	1
15	673-A0121	DUCKBILL CHECK VALVE	1
16	673-A0120	VALVE RETAINER	1
17	673-A0090	RETAINING RING	1
18	673-A0751	DOUBLE ROW ANGULAR CONTACT BEARING - 1 SEAL	1
19	673-A1767	SPACER 0.2 THK	1
20	673-A1024	BELLEVILLE WASHER	1
21	673-B0208	SPINDLE	1
22	673-A1025	RETAINING RING	1
23	673-A0022	24 mm PAD WRENCH	1
24	NA	1 Pad Supplied With Each Tool (Type Determined By Model)	1
25	673-A2058	THREADED PLUG	2
26	673-B0395	36.0 mm RH VACUUM HOUSING	1
27	673-A0032	MUFFLER INSERT	1
28	673-A1218	TOP HOUSING SEAL (NV & CV Machines)	1
29	673-B0290	MOTOR HOUSING SEAL	1
30	673-A2398	3/16 in. ORBIT THROTTLE SAFETY LEVER ASSEMBLY	1
	673-A2400	3/8 in. ORBIT THROTTLE SAFETY LEVER ASSEMBLY	1
31	673-A2062	HANGER	1
32	673-A1865	SPACER RING	2
33	673-B0356	MOTOR HOUSING W/SIDE HANDLE MOUNTING STUDS	1
34	673-A0031	LEVER SPRING PIN	1
35	673-A0655	VALVE STEM ASSEMBLY	1
36	673-A0015	VALVE SLEEVE	1
37	673-A0009	VALVE SEAT	1
38	673-A0007	VALVE	1
39	673-F0094	VALVE SPRING	1
40	673-A0730	AIRLINE SEAL ASSEMBLY	1
41	673-A0500	EXHAUST GASKET	1
42	673-B0181	SGV EXHAUST NOZZLE	1
43	673-B0182	NV/CV EXHAUST NOZZLE	1
44	673-A0664	SCREW	3
45	673-A0517	EXHAUST TUBING (NV & CV Machines)	1
46	673-A0516	TUBING CLAMP (NV & CV Machines)	1
47	673-A0511	INLET TUBING	1
48	673-C0153	5/6 in. BUFFER/NV SHROUD	1
49	673-A2060	5 in. MULTI-HOLE/LP SHROUD	1
	673-A2061	6 in. MULTI-HOLE/LP SHROUD	1
	673-C0147	5 in. TAPERED EDGE SKIRT	1
	673-C0146	6 in. TAPERED EDGE SKIRT	1
50	673-A1998	CLAYTON SIDE HANDLE	1
51	673-B0472	LH HOUSING WITH BLACK OVERMOLD	1
52	673-A1398	SCREW	5
53	673-A1430	SCREW	7
54	673-A0043	O-RING	1
55	673-A2059	SPEED CONTROL	1
56	673-A0039	INTERNAL RETAINING RING	1
57	673-A0510	INLET CAPTIVE RING	1
58	673-A0509	O-RING	1
59	673-A0628	O-RING (NV & CV Machines)	1
60	673-A0776	MUFFLER (NV & CV Machines)	2
61	673-A0731	INLET/EXHAUST END CAP ASSEMBLY FOR NV MACHINES	1
62	673-A2066	INLET/EXHAUST END CAP ASSEMBLY FOR SGV AND CV MACHINES	1
63	673-A0013	INLET BUSHING ASSEMBLY	1
64	673-A0392	Ø 1 in. VAC HOSE TO Ø 1 in./28 mm x 1 1/2 in. ADAPTOR COUPLING AND AIRLINE ASSEM	1
65	673-A0623	1 in. (28 mm) HOSE SEAL (SGV Machines)	1
66	673-A0412	Ø 1 in. VAC HOSE TO DOUBLE BAG FITTING AND AIRLINE ASSY	1
67	673-C0110	VACUUM BAG	1
68	673-C0109	VACUUM BAG INSERT	1
69	673-A2541	FRONT BEARING DUST SHIELD	1
70	673-A2540	TwoHAND SPINDLE BEARING DUST SHIELD	1

Sander Spare Parts Kits

In addition to the kits below, please see our complete General Rebuild Kit P/N 673-B0537 on page 5.



ROS Spindle Bearing Kit
P/N 673-A2525



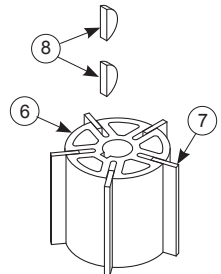
Drop-in Motor 5x³/16
P/N 673-B0495

Drop-in Motor 6x³/16
P/N 673-B0498

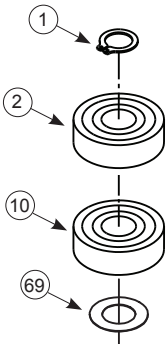
Drop-in Motor 5x³/8
P/N 673-B0496

Drop-in Motor 6x³/8
P/N 673-B0499

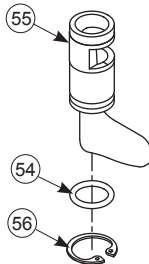
(Drop-in motor includes items 1-22, 69&70)



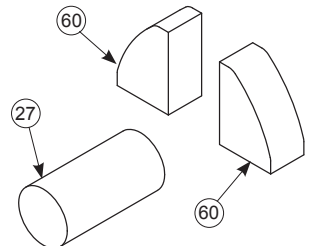
Rotor, Vanes and Key Kit
P/N 673-A2528



Endplate Bearing Kit
P/N 673-A0434



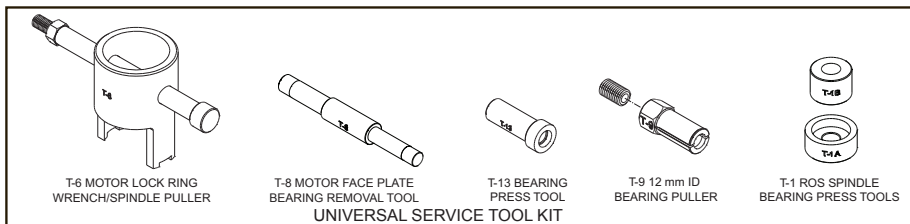
Speed Valve Kit
P/N 673-A2645



12,000 RPM Muffler Kit
P/N 673-A2524

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. TwoHAND™ 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-B0537 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-B0537 Clayton General Rebuild Kit Contents

Item	Part No.	Description	Qty.
1	673-A0040	External Retaining Ring	1
17	673-A0090	Retaining Ring	1
2	673-A0021	Bearing – 2 Shields	1
59	673-A0628	O-Ring	1
5	673-A0042	O-Ring	1
54	673-A0043	O-Ring	1
14	673-A0122	Filter	1
15	673-A0121	Check Valve	1
16	673-A0120	Valve Retainer	1
41	673-A0500	Exhaust Gasket	1
35	673-A0655	Valve Stem Assembly	1
40	673-A0730	Airline Seal Assembly	1
6	673-B0118	Rotor	1
7	673-A0445	Vanes	5
8	673-A0041	Key	2
10	673-A0019	Bearing	1
18	673-A0751	Bearing	1
19	673-A1767	Spacer	1
56	673-A0039	Internal Retaining Ring	1
60	673-A0776	Muffler	2
27	673-A0032	Muffler Insert	1
37	673-A0009	Valve Seat	1
38	673-A0007	Valve	1
39	673-F0094	Valve Spring	1
N/A	673-A2152	5/6 in. TwoHand ROS Instructions	1

DISASSEMBLY INSTRUCTIONS

Motor Disassembly:

To prevent damage to the motor assembly the following sequence must be followed:

1. Remove the Pad with the 24 mm Pad Wrench.
2. Unscrew the Lock Ring with the T-6 Motor Lock Ring Wrench/Spindle Puller Tool. The motor assembly and Lock Ring can now be lifted out of the Motor Housing.
3. Remove the Retaining Ring and the O-Ring from the Cylinder.
4. Remove the Rear Endplate. This requires supporting the Rear Endplate using a Bearing Separator and lightly pressing the shaft through the Bearing and the Rear Endplate. Remove the Cylinder and the five Vanes and Rotor from the shaft of the Shaft Balancer. Remove the Keys 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. 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 Shaft Balancer 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 pull the spindle assembly outward. Allow the parts to cool until they are safe to handle. Do not "bang out" the spindle assembly using the T-6 Motor Lock Ring Wrench/Spindle Puller Tool because this could damage the Bearing.
3. 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

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) TwoHAND™ Random Orbital Sander Service Instructions section provided is for use after completion of the warranty period.

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.

4. Remove the Retaining Ring from the Spindle.
5. Remove the bearing from the Spindle. Remove the Spacer, Dust Shield and Washer from the Spindle. Discard Dust Shield.

Housing Disassembly:

1. Unscrew the threaded Plug(s) and/or the Handle (if used) from the Motor Housing.
2. Remove the Hanger and Spacer Ring. (if used)
3. Remove the Retaining Ring. The Speed Control (with O-Ring) will now pull straight out from the Motor Housing. Use an o-ring pick to remove the O-Ring from the Speed Control.
4. Use a T-20 Torx driver to unscrew all Screws.
5. Remove the Housings.
6. Remove the Muffler and Seals from the Housing.
- 6a. For Non-Vacuum (NV) machines: Remove the End Cap.
- 6b. For Central Vacuum (CV) and Self Generated Vacuum (SGV) machines: Remove the End Cap. Remove the Hose Seal from the CV/SGV End Cap.
7. Unscrew the Inlet Bushing from the End Cap. Remove the Mufflers, Captive Ring, O-Ring, and O-Ring from the End Cap.
- 8a. For NV and CV machines: Remove the exhaust (Tub-

ing, Tubing Clamp, and inlet Tubing from the motor housing assembly. Separate the exhaust Tubing, Tubing Clamp, and inlet Tubing from each other.

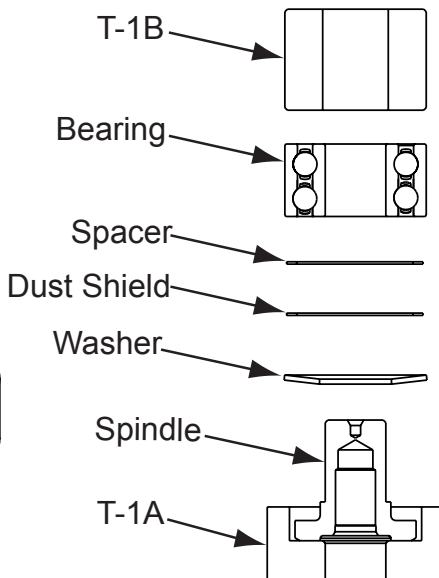
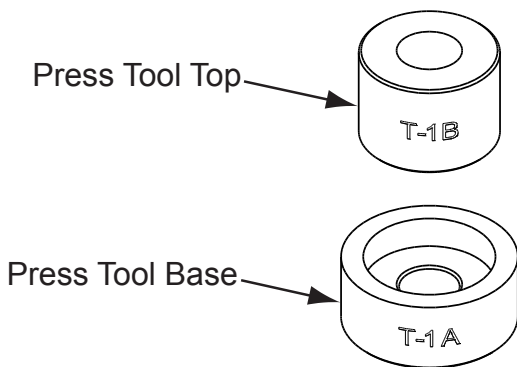
- 8b. For SGV machines: Remove the inlet Tubing from the motor housing assembly.
9. Unscrew the three Screws from the motor housing assembly.
- 10a. For NV and CV machines: Remove the NV/CV Exhaust Nozzle and the Gasket from the motor housing assembly.
- 10b. For SGV machines: Remove the SGV Exhaust Nozzle and the Gasket from the motor housing assembly.
11. Press out the Spring Pin from the Motor Housing and remove the Throttle Lever.
12. Remove the Seal Assembly. This component can become damaged during removal and will need to be replaced if damaged.
13. Remove the Spring, Valve, Valve Seat, and the Valve Stem from the Motor Housing. Use an o-ring pick to remove the o-ring from the Valve Stem.
14. Remove the Sleeve from the Motor Housing.
15. Remove the Shroud from the Motor Housing.

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. Press the Sleeve flush to the top of the Motor Housing.



2. Lightly grease the o-ring and place it in the groove of the Valve Stem. Install the Valve Stem into the Sleeve.
3. Install the Valve Seat, the Valve and the Spring. Press the Seal Assembly into the Motor Housing.
4. Install the Throttle Lever into the Motor Housing with the Spring Pin.
5. Install the Shroud onto the Motor Housing.
- 6a. For NV and CV machines: Install the NV/CV Exhaust Nozzle and the Gasket using the three Screws. Torque setting to be 21-30 in-lbs (2.4-3.4 N-m). Insert the exhaust Tubing and the inlet Tubing into the Tubing Clamp. Then insert the exhaust Tubing into the Exhaust Nozzle and insert the inlet Tubing into the Seal Assembly.
- 6b. For SGV machines: Install the SGV Exhaust Nozzle and Gasket using the three Screws. Torque setting to be 21-30 in-lbs (2.4-3.4 N-m). Insert the inlet Tubing into Seal Assembly.
7. Install the two Mufflers, O-Ring, Captive Ring, O-Ring into the End Cap. Lightly grease the o-rings before installation.
8. Coat the threads of the Bushing Assembly with 1 or 2 drops of Loctite™ 222 or equivalent non-permanent pipe thread sealant. Screw the Bushing Assembly into the inlet port on the End Cap until hand tight. Torque setting to be 60-72 in-lb (6.8-8.1 N-m).
- 9a. For CV and SGV machines: Insert the Inlet Tubing into the End Cap. Install the Inlet Tubing into the Seal Assembly.
- 9b. For NV machines: Insert the inlet Tubing into the End Cap.
10. Install the Muffler and Seals into the Housing.
11. Install the internal components into the Housing. Then install the Housing.
12. Install the Screws. Torque setting to be 27- 30 in-lbs (3.0-3.4 N-m) for Screw. Torque setting to be 29- 33 in-lbs (3.3-3.7 N-m) for Screw.
13. Lightly grease the O-Ring and place it in the groove on the Speed Control. Insert the Speed Control into the Motor Housing in the full on position. Install the Retaining Ring. Caution: Make sure the Retaining Ring is completely snapped into groove in the Motor Housing.
14. Install the Spacer Ring into the Hanger. Secure the hanger by screwing in the Plugs and/or install the Side Handle.

Spindle, AirSHIELD™ and Shaft Balancer Assembly:

1. Place the T-1A Spindle Bearing Pressing Tool Base onto a flat, clean surface of a small hand press or equivalent with the pocket facing upward. Place the Spindle into the spindle pocket with the shaft facing upward.
2. 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. Note: Make sure that both the inner and outer races of the Bearing are supported by the Bearing Press Tool when pressing them into place. Press the Bearing to the Spacer using the T-1B Spindle Bearing Pressing Tool Top.

3. Take the 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 surface of the Shaft Balancer.
4. Apply a pin head size drop of #271 Loctite® or equivalent to the outside diameter of the Bearing of the Spindle Assembly. Spread the drop of bearing locker around the Bearings until it is 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. Lightly grease the O-Ring with a light mineral grease and place it in the groove of the Lock Ring, then place it on the Shaft Balancer with the O-Ring facing towards the keyway.
3. 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.
4. 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 Front Endplate. Caution: Only press just enough to seat the Bearing into the pocket. Over-pressing can damage the Bearing.
5. Place the two Keys into the grooves of the Shaft Balancer. Place the Rotor onto the shaft of the Shaft Balancer, making sure that it is a light slip fit.
6. Place the Cylinder Assembly over the Rotor with the shorter 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. Oil the five Vanes with a quality pneumatic tool oil and place in the slots in the Rotor. One or two drops of oil should be sufficient.
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 of the Bearing. Lightly press fit the Rear Endplate and Bearing 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 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 motor assembly is held horizontal, but be able to slide between the Endplates with a very light force. If 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 Motor Housing.

8. 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.
9. Lightly grease the O-Ring and place in the air inlet of the Cylinder Assembly.
10. Lightly grease or oil the inside diameter of the Motor Housing, line up the spring pin of the Cylinder Assembly with the marking on the Motor Housing and slide the Motor Assembly into the Motor Housing. Make sure the Spring Pin engages the pocket in the Motor Housing. Carefully screw the Lock Ring into the Motor Housing with the T-6 Motor Lock Ring Wrench/Spindle Puller Tool. Torque settings to be 55-65 in-lb (6.2-7.3 N-m). 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 the Pad Wrench.

Testing:

Place 3 drops of quality pneumatic air tool oil directly into the motor inlet and connect the machine 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" 3/8 orbit	6" 3/16 orbit	6" 3/8 orbit
Sound Level (EN ISO 15744:2008)	* 84dBA	*83 dBA	*85 dBA	*81 dBA
Power	.46 hp	.46 hp	.46 hp	.46 hp
Speed RPM	12,000	12,000	12,000	12,000
Vibration (EN ISO 8662-8:1997; EN ISO 28662-1:1992)	*3.2 m/s ²	*3.5 m/s ²	* 3.0m/s ²	*3.4 m/s ²
*Uncertainty	1.6 K m/s ²	1.8 K m/s ²	1.5 K m/s ²	1.7 K m/s ²

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.

