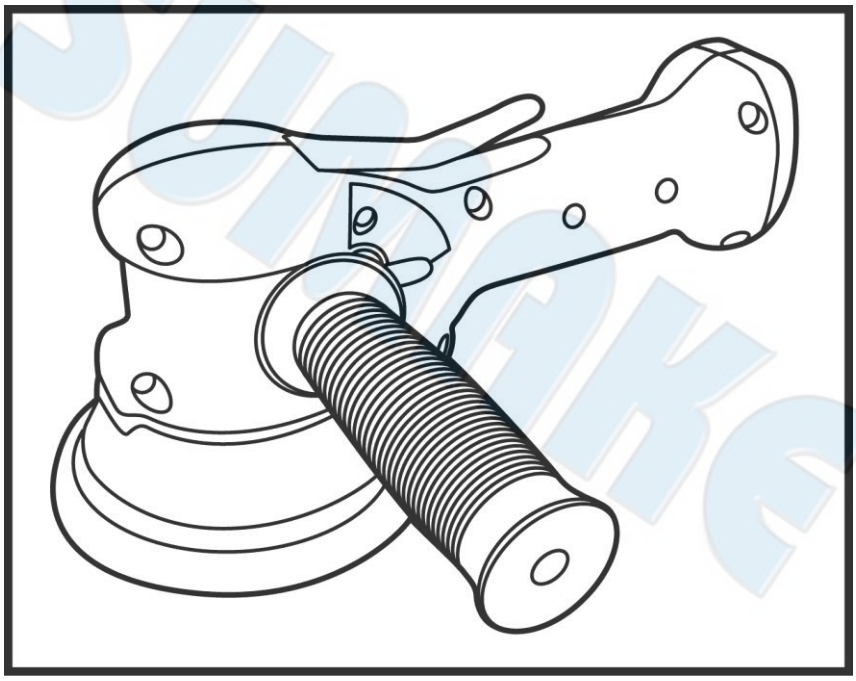
SUMAKE *PNEUMATIC TOOLS*



Central Vacuum Random Orbital Sander W/6” Hook (Stick) Pad ST-7000DC(S)-6-10

Specification:

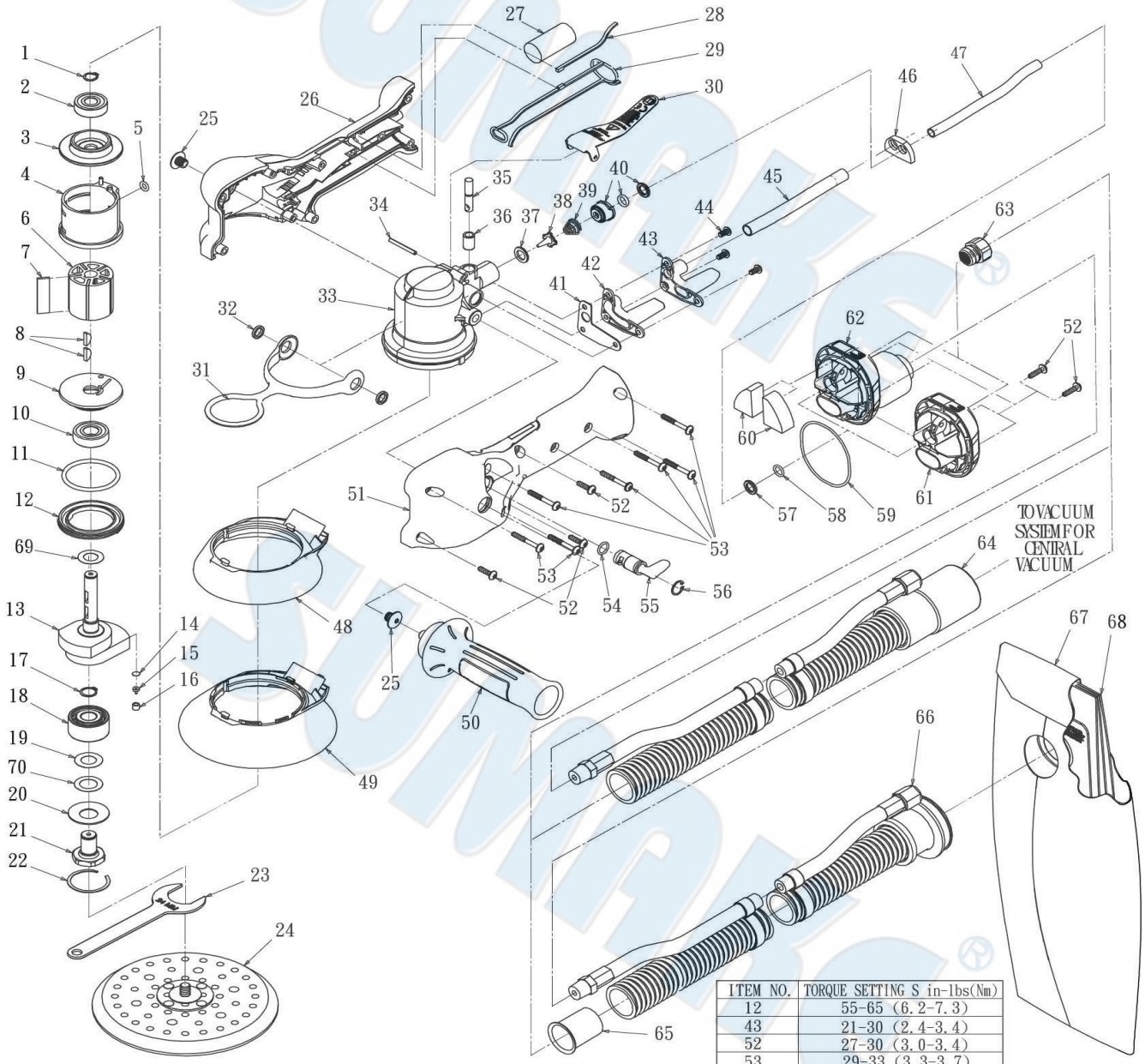
Free Speed	12,000 r/min
Sanding Pad	6” (152 mm)
Orbit Diameter	10 mm
Air Consumption	21 CFM (594 L/min)
Length	12.83” (325.8 mm)
Air Inlet (PT)	1/4” (6.35 mm)
Air Hose (I.D.)	3/8” (10 mm)
Air Pressure	90 psi (6.3 bar)
Net Weight	2.8 lbs (1.27 kg)

Noise and Vibration:

Vibration EN ISO 28927-3	**Noise** EN ISO 15744	**Remark**
No Load: 3.0 m/s²	Sound Pressure Level No load: 85 dB(A)	Please always wear ear protector at environment noise level > 80 dB(A) due to risk of impaired hearing!
	Sound power level No load: 96 dB(A)	
Uncertainty K= 1.5 m/s²	Uncertainty K= 3dB	

SUMAKE INDUSTRIAL CO., LTD
4F,NO.351,Yangguang St.,Neihu District TAIPEI, TAIWAN, ZIP:114-91

ST-7000DC(S) CENTRAL VACUUM RANDOM ORBITAL SANDER W/ HOOK (STICK) PAD
ST-7000NC(S) NON-VACUUM RANDOM ORBITAL SANDER W/ HOOK (STICK) PAD
ST-7000VC(S) SELF GENERATED VACUUM ORBITAL SANDER W/ HOOK(STICK) PAD



ITEM NO.	TORQUE SETTING S in-lbs(Nm)
12	55-65 (6.2-7.3)
43	21-30 (2.4-3.4)
52	27-30 (3.0-3.4)
53	29-33 (3.3-3.7)
63	60-72 (6.8-8.1)

ST-7000DC(S) CENTRAL VACUUM RANDOM ORBITAL SANDER W/ HOOK (STICK) PAD
ST-7000NC(S) NON-VACUUM RANDOM ORBITAL SANDER W/ HOOK (STICK) PAD
ST-7000VC(S) SELF GENERATED VACUUM ORBITAL SANDER W/ HOOK(STICK) PAD

PARTS LIST

No.	Parts No.	Description	Q'ty
1	XPA0040	External Retaining Ring	1
2	XPA0021	Bearing - 2 Shields	1
3	XPB0017	Rear Endplate	1
4	XPA0441	Cylinder Assembly	1
5	XPA0042	O-Ring	1
6	XPB0118	Rotor	1
7	XPA0445	Vane	5
8	XPA0041	Woodruff Key	2
9	XPB0016	Front Endplate	1
10	XPA0019	Bearing -2 Shields	1
11	XPA0045	O-Ring	1
12	XPA0001	Lock Ring	1
13	XPB0206	5x3/32"(125x2.5mm) Orbit Ros Shaft Balancer	1
	XPB0207	5x3/16"(125x5.0mm) Orbit Ros Shaft Balancer	1
	XPB0189	5x3/8"(125x10mm) Orbit Ros Shaft Balancer	1
	XPB0205	6x3/32"(150x2.5mm) Orbit Ros Shaft Balancer	1
	XPB0187	6x3/16"(150x5.0mm) Orbit Ros Shaft Balancer	1
	XPB0188	6x3/8"(150x10mm) Orbit Ros Shaft Balancer	1
14	XPA0122	Filter	1
15	XPA0121	Duckbill Check Valve	1
16	XPA0120	Valve Retainer	1
17	XPA0090	Retaining Ring	1
18	XPA0751	Bearing -1 Seal	1
19	XPA1767	Spacer 0.2 Thk	1
20	XPA1024	Belleville Washer	1
21	XPB0208	Spindle	1
22	XPA1025	Retaining Ring	1
23	XPA0022	24mm Pad Wrench	1
24	N/A	1 Pad Supplied With Each Tool	Opt.
25	XPA1711	Threaded Plug	2
26	XPB0376	R.H. Housing	1
27	XPA0032	Muffler Insert [DC(S) & NC(S) Machines]	1
28	XPAI218	Top Housing Seall [DC(S) & NC(S) Machines]	1
29	XPB0290	Motor Housing Seal	1
30	XPA1629	3/32"(2.5mm) Orbit Throttle Lever	1
	XPA1630	3/16"(5mm) Orbit Throttle Lever	1
	XPA1627	3/8"(10mm) Orbit Throttle Lever (No Brand)	1
31	XPB0420	Hanger	1
32	XPA1865	Spacer Ring	2

No.	Parts No.	Description	Q'ty
33	XPB0356	Motor Housing W/Side Handle Mounting Studs	1
34	XPA0004	Cylinder Spring Pin	1
35	XPA0655	Valve Stem Assembly	1
36	XPA0015	Valve Sleeve	1
37	XPA0009	Valve Seat	1
38	XPA0007	Valve	1
39	XPA0014	Valve Spring	1
40	XPA0730	Airline Seal Assembly	1
41	XPA0500	Exhaust Gasket	1
42	XPB0181	Sgv Exhaust Nozzle	1
43	XPB0182	DC(S) & NC(S) Exhaust Nozzle	1
44	XPA0664	Screw	3
45	XPA0517	Exhaust Tubing [DC(S) & NC(S) Machines]	1
46	XPA0516	Tubing Clamp [DC(S) & NC(S) Machines]	1
47	XPA0511	Inlet Tubing	1
48	XPC0153	5/6" Buffer Shroud [NC(S)]	1
49	XPC0138	6" Multi-Hole/Lp Shroud	1
	XPC0145	5" Multi-Hole/Lp Shroud	1
50	XPA2776	Side Handle (M8X1.25) (No Brand)	1
51	XPCO210	L.H. Housing	1
52	XPA1398	Screw	5
53	XPA1430	Screw	7
54	XPA0043	O-Ring	1
55	XPB0183	Speed Control	1
56	XPA0039	Internal Retaining Ring	1
57	XPA0510	Inlet Captive Ring	1
58	XPA0509	0-Ring	1
59	XPA0628	0-Ring [DC(S) & NC(S) Machines]	1
60	XPA0776	Muffler [DC(S) & NC(S) Machines]	2
61	XPA0731	Inlet/Exhaust End Cap Assembly [NC(S) Machines]	1
62	XPAI294	Inlet/Exhaust End Cap Assembly [DC(S) & VC(S) Machines]	1
63	XPA0013	Inlet Bushing Assembly	1
64	XPA0392	Φ1" Vac Hose To Φ1" 28mmx1-1/2" Adaptor Coupling And Airline Assembly	1
65	XPA0623	1"(28mm) Hose Seal [VC(S) Machines]	1
66	XPA0412	Φ1" Vac Hose To Double Bag Fitting And Airline Assy	1
67	XPC0110	Vacuum Bag (No Brand)	1
68	XPC0109	Vacuum Bag Insert (No Brand)	1
69	XPA2541	Front Bearing Dust Shield	1
70	XPA2540	Spindle Bearing Dust Shield	1

EC DECLARATION OF CONFORMITY

We: **SUMAKE INDUSTRIAL CO., LTD.**

4F, No. 351, Yangguang St., Neihu District, Taipei City, Taiwan

declare in sole responsibility that the equipment

Equipment： CENTRAL VACUUM RANDOM ORBITAL SANDER W/6" HOOK (STICK) PAD

Model/ Serial No.： ST-7000DC(S)-6-10

to which this declaration applies, complies with these normative documents:

- **Machinery Directive: 2006/42/EC**

and conforms to the following EN standard,

- **EN ISO 12100: 2010**
- **EN ISO 11148-8:2011**

Name and Signature/Position

Mike Su – Managing Director

Date and Place

2024/12/9

Taipei, Taiwan

SUMAKE®

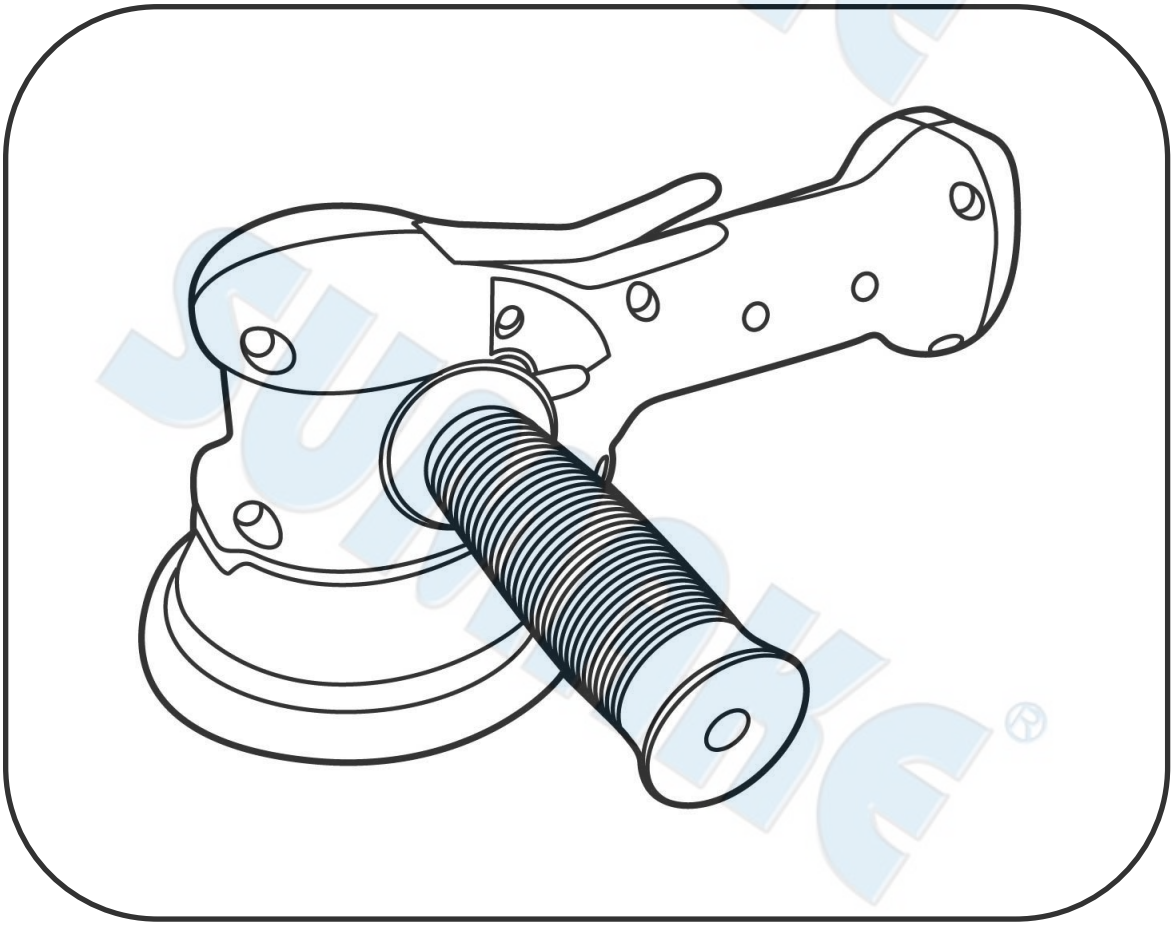
Professional & Industrial

INSTRUCTION MANUAL

ITEM NO.: ST-7000DC(S)
CENTRAL VACUUM RANDOM ORBITAL SANDER W/ HOOK (STICK) PAD

ITEM NO.: ST-7000NC(S)
NON-VACUUM RANDOM ORBITAL SANDER W/ HOOK (STICK) PAD

ITEM NO.: ST-7000VC(S)
SELF GENERATED VACUUM RANDOM ORBITAL SANDER W/ HOOK (STICK) PAD



SUMAKE

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 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 suitable pneumatic motor lubricating oil such as Fuji Kosan FK-20, Mobil ALMO 525 or Shell TORCULA® 32 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 be 90 PSI (6.2 Bar) while the tool is running so the maximum RPM is not exceeded. The tool can be run at lower pressures but should never be run higher than 90 PSI (6.2 Bar). If run at lower pressure the performance of the tool is reduced.

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.

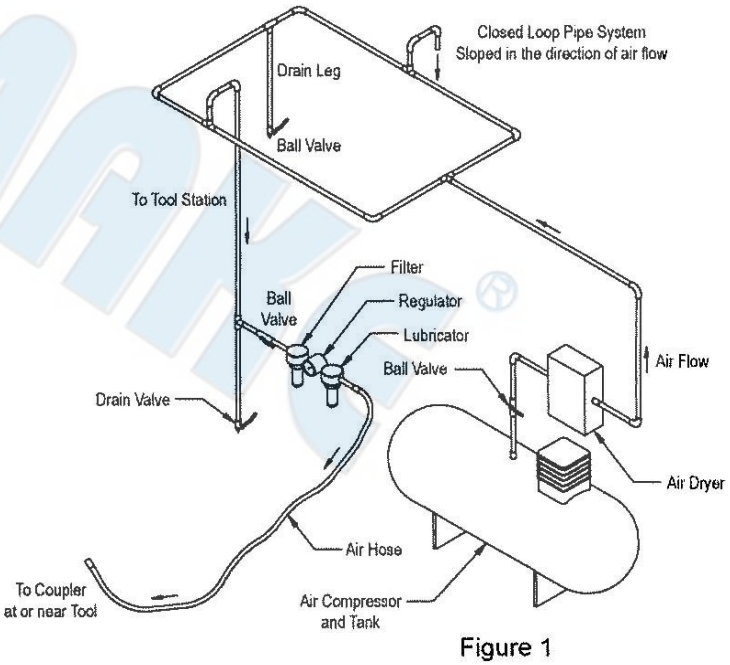


Figure 1

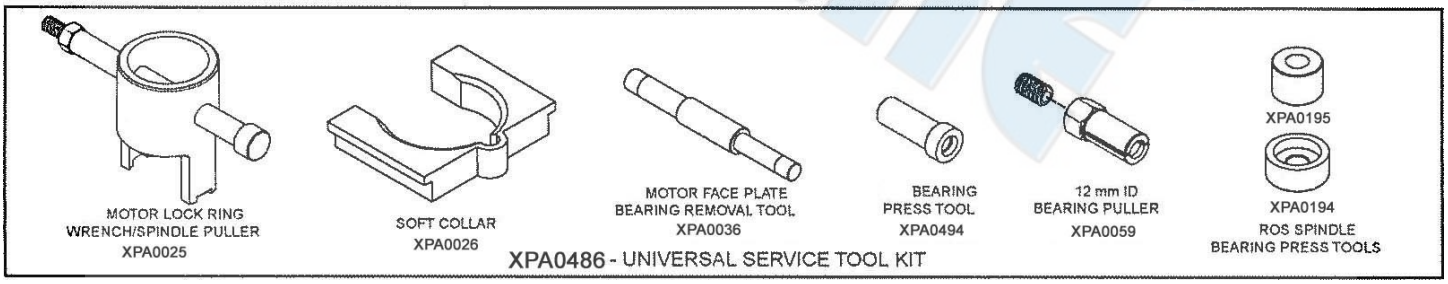
Back-Up Pads

SUMAKE back-up pads are perfectly mated for use on the **SUMAKE**. 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 **SUMAKE**. See "Product Configuration/Specifications" Table for the correct replacement pad for a particular model.

Description	Part #
5in. low profile, non-vacuum, vinyl face	50LNV00
5in. low profile, non-vacuum, hook face	50LNM00
5in. tapered edge, non-vacuum, vinyl face	50TNV00
5in. tapered edge, non-vacuum, hook face	50TNM00
5in. low profile, vacuum, 6 holes, hook	50LVV05
5in. low profile, vacuum, 6 holes, J hook	50LVJS6
5in. low profile, vacuum, vinyl face	50LVV05
5in. low profile, vacuum, hook face	50LVM05
5in.low profile, screen vacuum, J hook face	50LVJ0S
5in. tapered edge, vacuum, vinyl face	50TVV05
5in. tapered edge, vacuum, hook face	50TVM05
6in. low profile, non-vacuum, vinyl face	60LNV00
6in. low profile, non-vacuum, hook face	60LNM00
6in. low profile. screen vacuum, J hook face	60LVJ0S
6in. tapered edge, non-vacuum, vinyl face	60TNV00
6in. tapered edge, non-vacuum, hook face	60TNM00
6in. low profile, vacuum, vinyl face	60LVV06
6in. low profile, vacuum, hook face	60LVM06
6in. tapered edge, vacuum, vinyl face	60TVV06
6in. tapered edge, vacuum, hook face	60TVM06

Service Tools and Accessories

When an **SUMAKE** two handle 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 **SUMAKE** Service Center. The 5in. and 6in Random Orbital Sanders Service Instructions section provided are for use after completion of the warranty period.



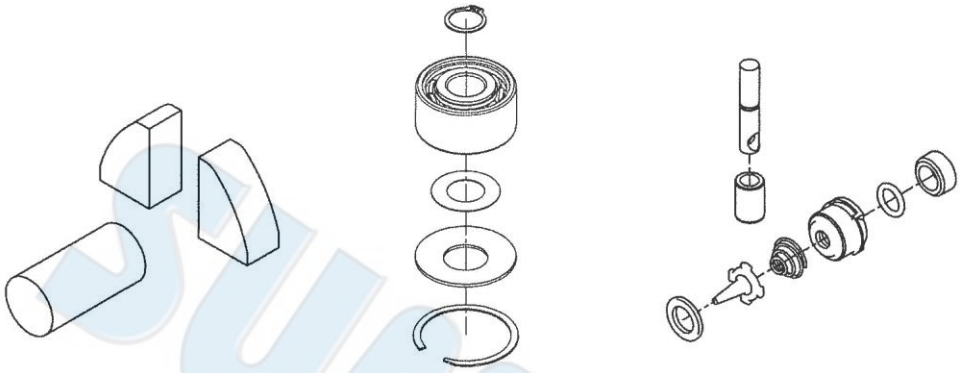
SUMAKE

Overhaul Service Kit

The XPB0424 **SUMAKE** Overhaul Service Kit contains all the replacement parts that naturally wear over time and a straightforward manual to make servicing an **SUMAKE** 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.

XPB0424 Overhaul Service Kit for 12,000rpm Two Handle 5in. & 6 in. ROS Contents		
Part No.	**Description**	**Qty.**
XPA0628	O-Ring	1
XPA0445	Vanes	5
XPA0776	Muffler	2
XPA0032	Muffler Insert	1
XPA0040	External Retaining Ring	1
XPA0039	Internal Retaining Ring	1
XPA0090	Retaining Ring	1
XPA0043	0-Ring	1
XPA0042	0-Ring	1
XPA1767	Spacer 0.2 Thk	1
XPA0122	Filter	1
XPA0121	Duckbill Check Valve	1
XPA0120	Valve Retainer	1
XPA0500	Exhaust Gasket	1
XPA0655	Valve Stem Assembly	1
XPA0730	Airline Seal Assembly	1
XPA0014	Valve Spring	1
XPA0007	Valve	1
XPA0009	Valve Seat	1
XPA0019	Bearing	1
XPA0021	Bearing - 2 Shields	1
XPA0751	Double Row Angular Contact Bearing	1
XPA0041	Key	2
XPB0118	Rotor	1

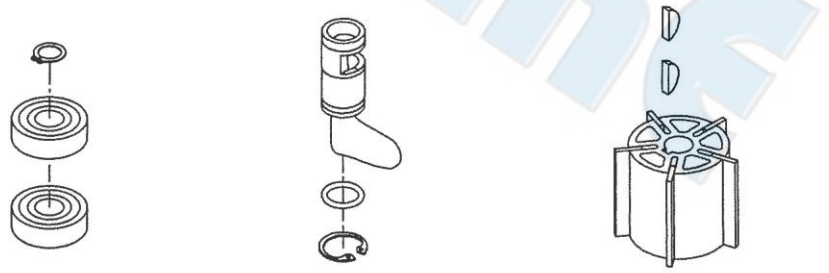
Sander Spare Parts Kits



Muffler Kit
Reorder P/N XPA1877

ROS Spindle Bearing Kit
Reorder P/N XPA1878

Air Inlet Kit
Reorder P/N XPA1879



Endplate Bearing Kit
Reorder P/N XPA0614

Speed Valve Kit
Reorder P/N XPA1880

Rotor, Vanes and Key Kit
Reorder P/N XPA1881

Low Profile Random Orbital Sander Service Instructions

NOTICE: To receive any expressed or implied warranty, tool must be repaired by an authorized service center. The following general service instructions provided are for use after completion of the warranty period.

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 (XPA0025) 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 0-Ring from the Cylinder.
4. Remove the Rear Endplate. This requires supporting the Rear Endplate using a (XPA0416) 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), 0-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 the bearing(s) from the endplates by using the (XPA0036) 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 (XPA0025) 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 100℃(212°F) 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 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.
4. Remove the Retaining Ring from the Spindle.
5. Remove the Bearing from Spindle. Remove the Spacer and Washer from the Spindle.

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 0-Ring from the Speed Control.
4. Use a (XPA2665) Torx driver to unscrew all Screws.
5. Remove the Housings.
6. Remove the Muffler and Seals from the Housing.
   6A. For Non-Vacuum (NC(S)) machines: Remove the End Cap.
   6B. For Central Vacuum (DC(S)) and Self Generated Vacuum (VC(S)) machines: Remove the End Cap. Remove the Hose Seal from the (DC(S)) / (VC(S)) End Cap.
7. Unscrew the Inlet Bushing from the End Cap. Remove the Mufflers, Captive Ring, 0-Ring, and 0-Ring from the End Cap.
8. 8A. For (NC(S)) and (DC(S)) machines: Remove the exhaust Tubing, Tubing Clamp, and inlet Tubing from the motor housing assembly. Separate the exhaust Tubing, Tubing Clamp, and inlet Tubing from each other.
   8B. For (VC(S)) machines: Remove the inlet Tubing from the motor housing assembly.
9. Unscrew the three Screws from the motor housing assembly.
10. 10A. For NC(S) and DC(S) machines: Remove the NC(S) / DC(S) Exhaust Nozzle and the Gasket from the motor housing assembly.
    10B. For VC(S) machines: Remove the VC(S) 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.

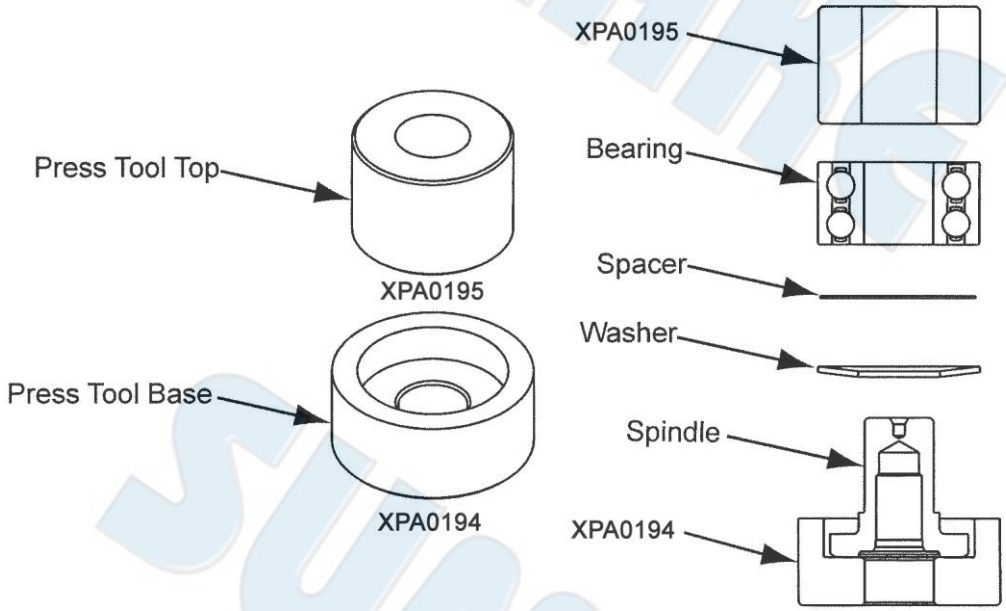
Housing Assembly:

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.
6. 6A. For NC(S) and DC(S) machines: Install the NC(S) / DC(S) 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 VC(S) machines: Install the VC(S) 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, 0-Ring, Captive Ring, 0-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-lbs (6.8-8.1 N-m).

9. 9A. For DC(S) and VC(S) machines: Insert the inlet Tubing into the End Cap. Install the Hose Seal into the End Cap.
   9B. For NC(S) 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 0-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 optional Side Handle.

Spindle Bearings, and Shaft Balancer Assembly:

1. Place the (XPA0194) 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 Spacer onto the shoulder of the Spindle. 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 (XPA0195) Spindle Bearing Pressing Tool Top.



3. Install the Retaining Ring.
4. 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.
5. 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. 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.
2. Use the larger end of the (XPA0494) Bearing Press Sleeve to press the front Bearing (with 2 Shields) onto the shaft of the Shaft Balancer.
3. 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 (XPA0494) 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.

4. 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.
5. 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 0.060 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.
6. Press fit the rear Bearing (2 shields) into the Rear Endplate with the T-1B Bearing Press Tool. Make sure the (XPA0195) 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 (XPA0494) 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.
7. 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 0-Ring and place in the air inlet of the Cylinder Assembly.
9. 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 (XPA0025) Motor Lock Ring Wrench/Spindle Puller Tool. Torque settings to be 55-65 in-lbs (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 XPA0025 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.
10. 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.

Troubleshooting:

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 PSI (6.3 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 contaminates and obstructions have been removed. If for 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 0-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.
Air leakage through the Speed Control and/or Valve Stem.	Worn or broken Spindle Bearings	Replace the worn or broken Bearings. See "Shaft Balancer and Spindle Disassembly" and "Spindle Bearings, and Shaft Balancer Assembly".
Vibration/Rough Operation	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".
	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 LSG machines add extra washer(s) to the pad spindle to increase the gap between the pad and shroud. For LSC machines reduce vacuum through the vacuum system and/or add extra washer(s) to the pad.

Read all these safety instructions before operating this product and save these instructions.

The tool has been manufactured in conformity with the instruction of EU machine directive. The EU mark will be considered void in the event of inexpert repairs, the use of non-original parts and in case of non-observance of the safety instructions in the user's manual.

Possible direct or indirect consequential damages are not the responsibility of **SUMAKE** Industrial co., Ltd.

General safety rules:

1. Watch the tool at all times when in use.
2. People under the influence of alcohol or drugs are not allowed to use, repair or maintain the tool.
3. Keep unqualified persons, children, etc. away from the tool.
4. Keep work area clean and with sufficient daylight or artificial lighting. The work area on which the machine is used must be cleaned up. Disorder is a potential cause of accidents.
5. Danger of explosion. Never use oxygen and combustible gas as an air supply for the tool which many be ignited by spark and cause fire or explosion.
6. Never use gasoline or other flammable liquids to clean the tool.
7. Do not use air tools in potentially explosive atmospheres such as in the presence of flammable liquids, cleaning solvents, fluid energy or stored gases.
8. Do not expose air tools to rain. Do not use air tools in damp or wet locations.
9. When a fault or failure is detected, the tool must immediately be disconnected from the air supply and returned for repair.
10. It is not permitted to modify the tool in any way.
11. When not in use, keep tools in a dry place, either locked up or in a high place, out of the reach of children.
12. Do not force small air tools to do the job of a heavy –duty task. Do not use air tool for purpose of which was not intended.
13. Wear suitable ear protection at environment noise level >80dB(A) and safety spectacles when using the tool. Always wear approved safety goggles if work in dusty. This also applies to other persons in the nearby vicinity.
14. Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid foot wear are recommended when working outdoors. Wear protective hair covering to contain long hair.
15. Keep proper footing and balance at all times.
16. Use clamps or a vice to hold work-piece. It is safer than using your hand and free both hands to operate the air tool.
17. When not use, before performing service or changing accessories, please disconnect tool from air compressor.
18. Do not carry plugged in air tool with your finger on the switch trigger. Be sure switch is in the "OFF" position when connecting to air supply.
19. Watch what you are doing. Use common sense, even unsafe situation or unbalanced positions, particularly when you are tired.
20. Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands or arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.
21. For multiple hazards, read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on, or working near the sander. Failure to do so can result in serious bodily injury.
22. Only qualified and trained operators should install, adjust or use the sander.
23. Do not modify this sander. Modifications can reduce the effectiveness of safety measures and increase the risks to the operator.
24. Do not discard the safety instructions; give them to the operator.
25. Do not use a sander if the tool has been damaged.
26. Tools shall be inspected periodically to verify that the ratings and markings required by this part of EN ISO 11148 are legibly marked on the tool. The employer/user shall contact the manufacturer to obtain replacement marking labels when necessary.

Safety precautions for projectile hazards

1. Be aware that failure of the workpiece or accessories, or even of the inserted tool itself can generate high-velocity projectiles.
2. Always wear impact-resistant eye protection during operation of the sander. The grade of protection required should be assessed for each use.
3. For overhead work, wear a safety helmet.
4. The risks to others should also be assessed at this time.
5. Ensure that the workpiece is securely fixed.

Safety precautions for entanglement hazards

1. Choking, scalping and/or lacerations can occur if loose clothing, personal jewellery, neck wear, hair or gloves are not kept away from the tool and accessories.

Safety precautions for operating hazards

1. Use of the tool can expose the operator's hands to hazards, including cuts and abrasions and heat. Wear suitable gloves to protect hands.
2. Operators and maintenance personnel shall be physically able to handle the bulk, weight and power of the tool.
3. Hold the tool correctly; be ready to counteract normal or sudden movements and have both hands available.
4. Maintain a balanced body position and secure footing.
5. Release the start-and-stop device in the case of an interruption of the energy supply.
6. Use only lubricants recommended by the manufacturer.
7. Personal protective safety glasses shall be used; suitable gloves and protective clothing are recommended.
8. Inspect the backing pad before each use. Do not use if cracked or broken or if it has been dropped.

9. Avoid direct contact with the moving sanding pad in order to prevent pinching or cutting of hands or other body parts. Wear suitable gloves to protect hands.
10. Never run the tool unless abrasive is applied to the workpiece.
11. There is a risk of electrostatic discharge if used on plastic and other non-conductive materials.
12. Potentially explosive atmospheres can be caused by dust and fumes resulting from sanding.
13. Always use dust extraction or suppression systems which are suitable for the material being processed.

Safety precautions for repetitive motions hazards

1. When using a sander to perform work-related activities, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.
2. While using a sander, the operator should adopt a comfortable posture whilst maintaining secure footing and avoiding awkward or off-balance postures. The operator should change posture during extended tasks; this can help avoid discomfort and fatigue.
3. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warning signs should not be ignored. The operator should tell the employer and consult a qualified health professional.

Safety precautions for accessory hazards

1. Disconnect the sander from the energy supply before fitting or changing the inserted tool or accessory.
2. Avoid direct contact with the inserted tool during and after use, as it can be hot or sharp.
3. Use only sizes and types of accessories and consumables that are recommended by the manufacturer of sanders; do not use other types or sizes of accessories or consumables.
4. Grinding wheels and cutting-off tools shall not be used.
5. Check that the maximum operating speed of the inserted tool (flap wheels, abrasive belts, fibre discs, backing pads, etc.), is higher than the rated speed of the sander.
6. Self-fixing sander discs shall be placed concentrically on the supporting pad.

Safety precautions for workplace hazards

1. Slips, trips and falls are major causes of workplace injury. Be aware of slippery surfaces caused by use of the tool and also of trip hazards caused by the air line or hydraulic hose.
2. The sander is not intended for use in potentially explosive atmospheres and is not insulated against contact with electric power.
3. Ensure that there are no electrical cables, gas pipes, etc., which can cause a hazard if damaged by use of the tool.

Safety precautions for dust and fume hazards

1. Dust and fumes generated when using sanders can cause ill health (for example cancer, birth defects, asthma and/or dermatitis); risk assessment and implementation of appropriate controls for these hazards are essential.
2. Risk assessment should include dust created by the use of the tool and the potential for disturbing existing dust.
3. Operate and maintain the sander as recommended in these instructions, to minimize dust or fume emissions.
4. Direct the exhaust so as to minimize disturbance of dust in a dust-filled environment.
5. Where dust or fumes are created, the priority shall be to control them at the point of emission.
6. All integral features or accessories for the collection, extraction or suppression of airborne dust or fumes should be correctly used and maintained in accordance with the manufacturer's instructions.
7. Select, maintain and replace the consumable/inserted tool as recommended in the instruction handbook, to prevent an unnecessary increase in dust or fumes.
8. Use respiratory protection in accordance with employer's instructions and as required by occupational health and safety regulations.

Safety precautions for noise hazards

1. Exposure to high noise levels can cause permanent, disabling hearing loss and other problems, such as tinnitus (ringing, buzzing, whistling or humming in the ears). Therefore, risk assessment and implementation of appropriate controls for these hazards are essential.
2. Appropriate controls to reduce the risk can include actions such as damping materials to prevent workpieces from “ringing”.
3. Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations.
4. Operate and maintain the sander as recommended in the instruction handbook, to prevent an unnecessary increase in the noise level.
5. Select, maintain and replace the consumable/inserted tool as recommended in the instruction handbook, to prevent an unnecessary increase in noise.
6. If the sander has a silencer, always ensure it is in place and in good working order when the tool is being operated.

Safety precautions for vibration hazards

1. Exposure to vibration can cause disabling damage to the nerves and blood supply of the hands and arms.
2. Wear warm clothing when working in cold conditions and keep your hands warm and dry.
3. If you experience numbness, tingling, pain or whitening of the skin in your fingers or hands, stop using the sander, tell your employer and consult a physician.
4. Operate and maintain the sander as recommended in the instruction handbook, to prevent an unnecessary increase in vibration levels.
5. Hold the tool with a light but safe grip, taking account of the required hand reaction forces, because the risk from vibration is

generally greater when the grip force is higher.

Additional safety instructions for pneumatic power tools

1. Air under pressure can cause severe injury.
2. Always shut off air supply, drain hose of air pressure and disconnect tool from air supply when not in use, before changing accessories or when making repairs.
3. Never direct air at yourself or anyone else.
4. Whipping hoses can cause severe injury. Always check for damaged or loose hoses and fittings.
5. Whenever universal twist couplings (claw couplings) are used, lock pins shall be installed and whipcheck safety cables shall be used to safeguard against possible hose-to-tool and hose-and-hose connection failure.
6. Do not exceed the maximum air pressure stated on the tool.
7. Never carry an air tool by the hose.

Specific safety instructions

Warnings shall be given about any specific or unusual hazards associated with the use of the sander. Such warnings shall indicate the nature of the hazard, the risk of injury and the avoidance action to be taken.

Risk of injury

1. Compressed air can inflict serious injuries. Therefore never point the air hose at another person or yourself.
2. Shut – off the air supply and disconnect the tool in case:
   - ➢ You want to change or replace accessories.
   - ➢ You want to clean, repair or maintain the tool.
   - ➢ The tool is not going to use for some times.
3. Check compressed air hose before use. If it is damaged, broken, torn, or deformed, the hose is not to be connected to the tool.
4. Always check the pneumatic couplings before using the tool. If they show signs of damage, fracture, cracking or excessive corrosion, the respective tool or the air hose is not to be used.
5. Use only qualified adapters and connectors, In case of wear they are to be replaced immediately.
6. Only use air pipes that are fit for the use at maximum pressure.

Maintenance instruction:

1. Dry the filter (fig1) and the air inlet of the tool.
2. Lubricate the quick connect coupling to prevent blocking.
3. Air tool require lubrication throughout the life of the tool. The air motor and bearing uses compressed air to start the tool. The moisture in compressed air will rust the air motor; you must lubricate the motor daily.
4. Avoid storing the tool in a location subject to high humidity. If the tool is left as it is used, the residual moisture inside the tool can cause rust.
5. Before storage, lubricate tool and run it for a few seconds.
6. Regular inspection of spindles, threads, and clamping devices in respect of wear and tolerances for location of abrasive products.
7. If the tool is too seriously damage to be used anymore, recycle raw material instead of disposing as waste. The machine, accessories and packaging should be sorted for environmental-friendly recycling. Check with your local authority or retailer for recycling advice.