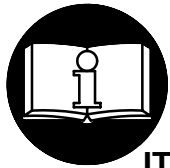


MAINTENANCE MANUAL FOR MODEL R025A–CFS RANDOM ORBITAL SANDER FOR COLD AIR POLISHING

NOTICE

Models R025A–CFS Random Orbital Sander for Cold Air Polisher is designed for use with the CFS200A Cold Air Finishing System for surface finishing in the automotive, aerospace, marine and furniture industries.

Ingersoll–Rand is not responsible for customer modification of tools for applications on which Ingersoll–Rand was not consulted.



⚠ WARNING

**IMPORTANT SAFETY INFORMATION ENCLOSED.
READ THIS MANUAL BEFORE OPERATING TOOL.**

**IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION
IN THIS MANUAL INTO THE HANDS OF THE OPERATOR.**

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

- Always operate, inspect and maintain this tool in accordance with: American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1).
- For safety, top performance, and maximum durability of parts, operate this tool at 90 psig (6.2 bar/620 kPa) maximum air pressure at the inlet with 5/16" (8 mm) inside diameter air supply hose.
- Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.
- Always turn off the CFS200A cold air system, electrical and air supply, and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.
- Parts of this unit operate in a frigid condition. Do not allow exposed flesh to contact components that are cold air conductors.
- Do not place exposed flesh in the tool exhaust or cold air stream for any length of time. If tingling or pain occurs, seek immediate treatment for frost-bite.
- This tool is intended to be used with the CFS200A Cold Air System. Before operating the tool, read the Operator's Manual, Form 7377.
- Line pressure air will become active at the tool inlet when the CFS200A power unit reaches its preset parameters.
- Keep hands, loose clothing and long hair away from rotating end of tool.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Check for excessive speed and vibration before operating.
- Tool shaft may continue to rotate briefly after throttle is released.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.

NOTICE

The use of other than genuine Ingersoll–Rand replacement parts may result in safety hazards, decreased tool performance and increased maintenance, and may invalidate all warranties.

Repairs should be made only by authorized, trained personnel. Consult your nearest Ingersoll–Rand Authorized Service center.

Refer All Communications to the Nearest
Ingersoll–Rand Office or Distributor.

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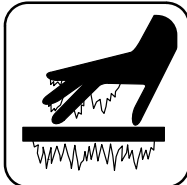
INGERSOLL-RAND®
PROFESSIONAL TOOLS


WARNING LABEL IDENTIFICATION

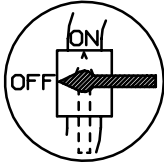
⚠ WARNING


FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.


	⚠ DANGER
	This unit operates on voltages up to 240 volts AC. Always lock off electrical supply before opening cabinet or performing maintenance on this equipment.


	⚠ DANGER
	Parts of this unit operate in a frigid condition. Do not allow exposed flesh to contact components that are cold air conductors. Do not place exposed flesh in the tool exhaust or cold air stream for any length of time. If tingling or pain occurs, seek immediate medical treatment for frostbite.

	⚠ WARNING
	Always wear eye protection when operating or performing maintenance on this tool.


	⚠ WARNING
	Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

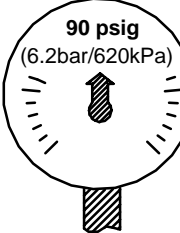
	⚠ WARNING
	Do not carry the tool by the hose.

	⚠ WARNING
	Keep body stance balanced and firm. Do not overreach when operating this tool.

	⚠ WARNING
	Always wear hearing protection when operating this tool.

	⚠ WARNING
	Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.

	⚠ WARNING
	Do not use damaged, frayed or deteriorated air hoses and fittings.

	⚠ WARNING
	Operate at 90 psig (6.2bar/620kPa) Maximum air pressure.

SANDER SPECIFIC WARNINGS

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

- Do not use this tool if actual free speed exceeds the nameplate rpm.
- Before mounting a pad, after any tool repair or whenever a Sander is issued for use, check free speed of Sander with a tachometer to make certain its actual speed at 90 psig (6.2 bar/620 kPa) does not exceed rpm stamped or printed on the nameplate. Sanders in use on the job must be similarly checked at least once each shift.
- Model R025A-CFS Sander has a free speed of 12,000 rpm when operated at 90 psig (6.2 bar/620 kPa) air pressure. Operation at higher air pressure will result in excessive speed.
- Do not use any accessory having a maximum operating speed less than the free speed of the Sander in which it is being used.
- When using a pad having a shank, insert the shank to full depth in the collet. When using a pad on a threaded collet, make certain the flange nut is tightened securely. Check the tightness of the collet nut or flange nut before operating a Sander to make certain it will not loosen during operation.

PLACING TOOL IN SERVICE

LUBRICATION



Ingersoll-Rand No. 10 Ingersoll-Rand No. 68

This tool is designed to operate without air line lubrication. Introduction of a lubricant with a standard filter/regulator/lubricator will not affect tool life.

After each 160 hours of operation, inject one or two strokes of Ingersoll-Rand No. 68 Grease thru threaded end of Spindle (27) for lubrication of needle bearing contained in Counterbalance (26). Sanding pad must be removed from Spindle to allow injection of grease.

CAUTION

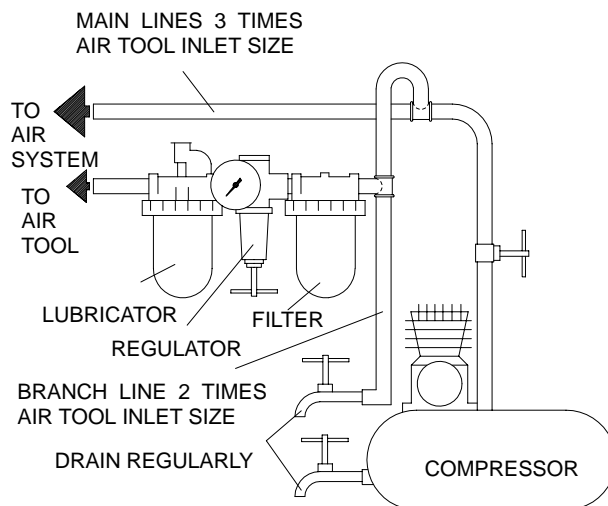
Do not mark any nonmetallic surface of this tool with customer identification codes. Such action could affect tool performance.

INSTALLATION

Air Supply and Connections

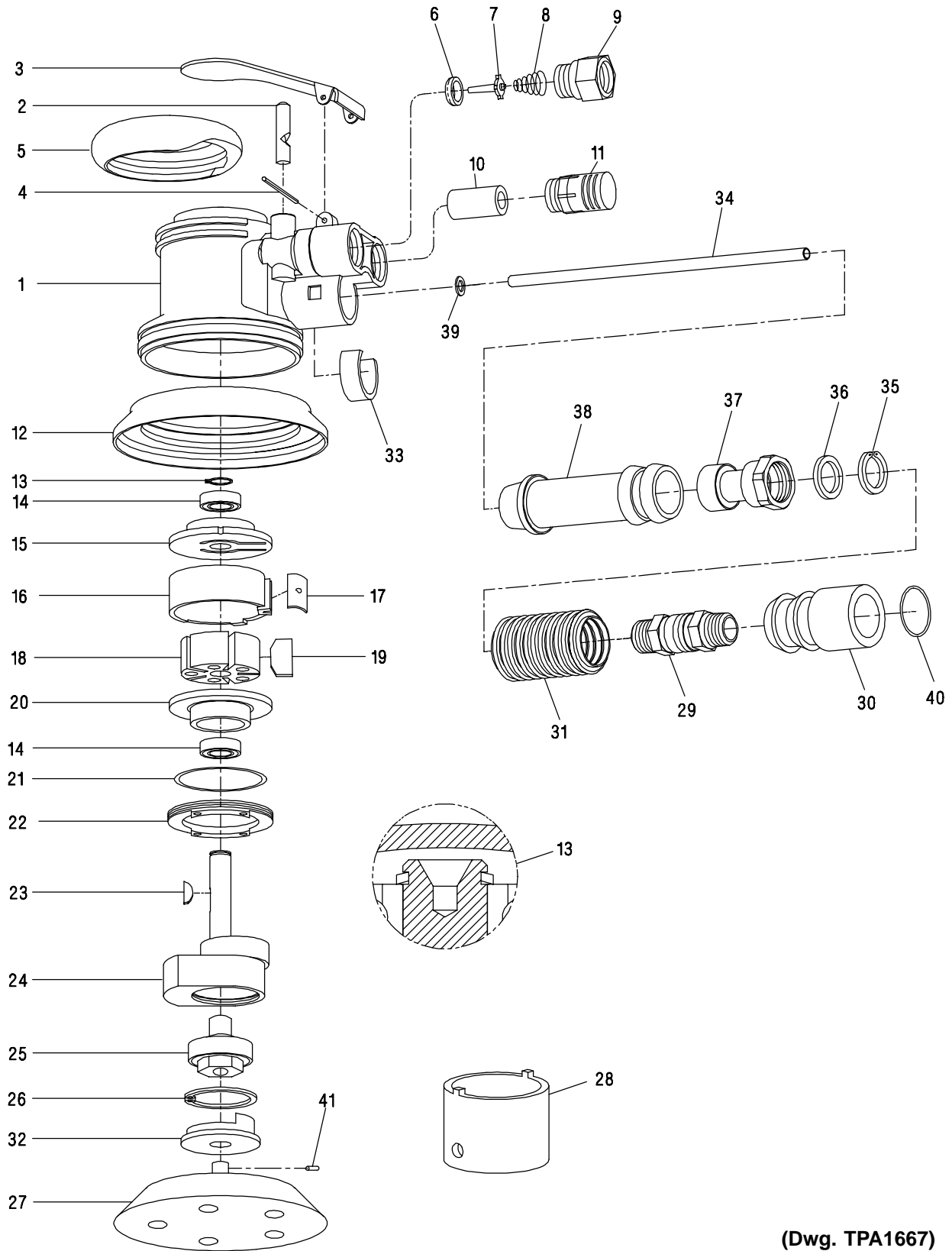
Always use clean, dry air at 90 psig maximum air pressure. Dust-corrosive fumes and/or excessive moisture can ruin the motor of an air tool. An air line filter can greatly increase the life of an air tool.

Make sure all hoses and fittings are the correct size and are tightly secured.



(Dwg. TPD905-1)

MAINTENANCE SECTION



(Dwg. TPA1667)



MAINTENANCE SECTION

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

1	Housing (includes pin)	04561429	24	Counterbalance (includes needle bearing) . .	49808-5
2	Valve Stem	48065-2	25	Spindle Assembly (includes bearing)	49807
3	Lever	48274-2	26	Retaining Ring	Y147-125
4	Roll Pin	Y178-134	27	Sanding Pad Assembly	04595955
5	Grip Ring	49798	28	Wrench	30131-2
6	Seat	48071	29	Coupling	04556445
7	Tip Valve	48070	30	Swivel Connector	04556437
8	Spring	32858	31	Hose	04595856
9	Inlet Adapter	49824	32	Housing Adapter	04595864
10	Muffler Tube	48263-1	33	Spring Clamp	04595872
11	Muffler	49818		Supply Tube Assembly	04595922
12	Shroud	48266-1	34	Supply Tube	04595914
13	Retaining Ring	44533	35	Retaining Ring	Y147-87
14	Bearing (2)	48169-1	36	Spacer	04595898
15	Rear End Plate	48872	37	Compression Fitting	04595930
16	Cylinder (includes roll pin)	49815	38	Adapter Sleeve	04595906
17	Seal	49819	39	O-ring	04556460
18	Rotor	48253-1	40	O-ring	04556452
19	Vane Packet (set of 5 Vanes)	48254-1	41	Roll-Pin	Y178-4
20	Front End Plate	48871	*	Service Kit (includes items 8, 15, 16, 21, 27 and 28)	49837
21	O-ring	Y325-223			
22	Motor Lock Ring	48257-1			
23	Key	39442			

* Not illustrated.

MAINTENANCE SECTION

WARNING

Always wear eye protection when operating or performing maintenance on this tool.

Always turn off the air supply and disconnect the air supply hose and shut off the electric supply before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

LUBRICATION

Whenever one of the Sanders is disassembled for overhaul or replacement of parts, lubricate as follows:

1. Always wipe the Vanes (21) with a light film of oil before inserting them into the vane slots.
2. Inject 0.5 to 1.0 cc of Ingersoll-Rand No. 10 Oil into the air Inlet Bushing (1) after assembly.

DISASSEMBLY

General Instructions

1. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
2. Do not press any needle bearing from a part unless you have a new needle bearing on hand for installation. Needle bearings are always damaged during the removal process.
3. When grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part or tool and help prevent distortion. This is particularly true of threaded members and housings.
4. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.

Removal of the Sanding Pad

1. Place a 1/8" hex wrench in the set screw in the center of the Pad (27).
2. Holding the set screw in place, unscrew the Pad from the set screw.
3. Remove the spacer from the set screw.
4. With the Pad removed, lubricate the counterbalance needle bearing by injecting one or two strokes of Ingersoll-Rand No. 68 Grease into the threaded end of the Spindle.

Disassembly of the Base Adapter

1. Remove the Cold Air Channel from the tool by removing the Spring Clamp (33).
2. Remove the Shroud to expose two Roll Pins (41).
3. Using pliers or a vise, remove the Roll Pins.
4. The Housing Adapter (32) will slip out of the Sander face, exposing the Motor Lock Ring (24).

Disassembly of the Spindle

1. Remove the Sanding Pad and Base Adapter.
2. Remove the Retaining Ring (26).
3. Remove the Spindle Assembly (25) including bearing.

NOTICE

Do not attempt to remove the bearing from the Spindle.

4. Remove the Motor Lock Ring (22) and pull the motor and Seal (17) from the Housing (1).
5. Remove the Retaining Ring (13).
6. Using special brass blocks to fit around the outside diameter of the Cylinder (16), clamp around the Cylinder and press the shaft of the Counterbalance (24) through the Bearing (14) and Rear End Plate (15).
7. Remove the Vanes (19), Rotor (18) and Key (23).
8. Remove the Front End Plate (20) and Bearing (14).

Disassembly of the Throttle

1. Remove the Inlet Adapter (9). This will release the Spring (8) and Tip Valve (7).

NOTICE

Do not remove the Seat (6) unless it has been damaged.

2. Remove the Muffler (11), releasing the Muffler Tube (10)
3. To remove the Valve Stem (2), remove the Roll Pin (4) and Lever (3).

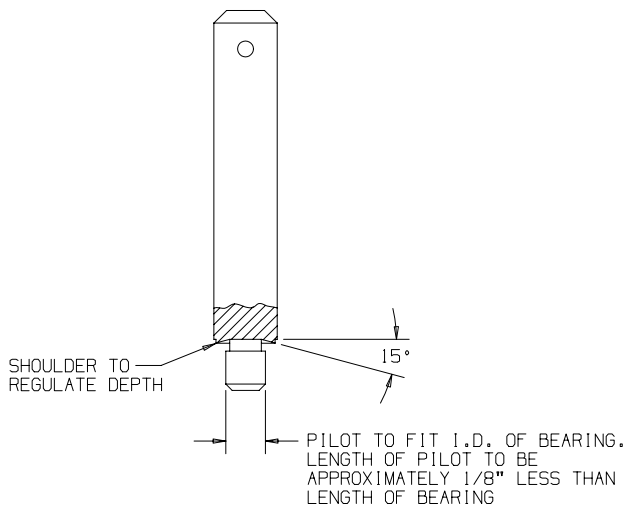
MAINTENANCE SECTION

ASSEMBLY

General Instructions

1. Always press on the **inner** ring of a ball-type bearing when installing the bearing on a shaft.
2. Always press on the **outer** ring of a ball-type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws. Take extra care not to damage threads or distort housings.
4. Except for bearings, always clean every part and wipe every part with a thin film of oil before installation.
5. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in **clean** solution and dry with a clean cloth. Sealed or shielded bearings should not be cleaned. Work grease into every open bearing before installation.
6. Apply a film of o-ring lubricant to every o-ring before installation.
7. Unless otherwise noted, always press on the stamped end of a needle bearing when installing a needle bearing into a recess. Use a bearing inserting tool similar to the one shown in Dwg. TPD786.

Needle Bearing Inserting Tool



(Dwg. TPD786)

Assembly of the Throttle

1. Install Valve Stem (2) in Housing (1) so that the hole in the Valve Stem aligns with the hole in the Housing to accept the Tip Valve (7).
2. Install the Seat (6) in the Housing with the rounded corners on the Seat entering the Housing first.
3. Install the Tip Valve in the Housing. Secure it with the Valve Stem (2).

4. Install the Spring (8) and Inlet Adapter (9) in the Housing to secure the throttle components.
5. Install the Lever (3) on the Housing and secure it with the Roll Pin (4).

Assembly of the Motor

1. Coat O-ring (21) with o-ring lubricant and install it on the Motor Lock Ring (22).
2. Assemble the Motor Lock Ring over the Counterbalance (24).
3. Install the Bearing (14) into the Front End Plate (20), pressing on the **OUTER** race of the Bearing.
4. Install the Key (23) in the key slot.
5. Install the Rotor (18) on the Counterbalance, aligning the keyway to the Key.
6. Install the Vanes (19) in the slots in the Rotor.
7. Install the Cylinder (16) over the Rotor, aligning the roll pin in the Cylinder with the slot in the Front End Plate.
8. Install the Bearing (14) in the Rear End Plate (15), pressing on the **OUTER** race of the Bearing.
9. Install the Rear End Plate with assembled Bearing on the Counterbalance, pressing on the **INNER** race of the Bearing.

NOTICE

Align the slot in the Rear End Plate with the slot in the Cylinder

10. Install the Retaining Ring (13) in the groove in the Counterbalance with the bow in the Retaining Ring positioned as shown in Drawing TPA1667.
11. Install the Seal (17) in the grooves in the Cylinder.
12. Install the motor assembly in the Housing aligning the Seal (19) with the air inlet.
13. Tighten the Motor Lock Ring (22) to secure the motor assembly.
14. Lubricate the needle bearing in the counterbalance by injecting one or two strokes of Ingersoll-Rand No. 68 Grease into the threaded end of the Spindle Assembly (25).
15. Install the Spindle Assembly on the Counterbalance, securing it with the Retaining Ring (26).

Assembly of the Base Adapter

1. Slide the Housing Adapter (32) into the motor bore and align holes.
2. Press the Roll Pins (41) into the Housing and Housing Adapter (32).
3. Make sure the O-ring (39) is on the end of the cold air channel.
4. Replace the Cold Air Channel on the tool and secure it with the Spring Clamp (33).

MAINTENANCE SECTION

Installation of the Sanding Pad

1. Thread set screw into the Spindle until it locks in place.
2. Slip the spacer onto the set screw.
3. Holds the set screw in place with a 1/8" hex wrench and screw the pad onto the set screw until it is tightened securely.

Cold Air Channel

NOTICE

The Cold Air Channel and its components can be serviced as a separate unit. It is not necessary to disassemble the tool to perform maintenance on the Cold Air Channel.

Disassembly of the Cold Air Channel

1. Remove the Spring Clamp (33) from the Sander.
2. Slide the Supply Tube Assembly (34) out of the Housing (1). This now leaves the Sander and Cold Air Channel free for maintenance.
3. Slide the Hose (31) off of the Adapter Sleeve (38).
4. Unscrew the Swivel Connector (30) from the Compression Fitting (37) and pull off the O-ring (39).
5. Remove the Retaining Ring (35).
6. Pull out the Supply Tube and Compression Fitting (37) with Spacer (36).

NOTICE

Do not disconnect the Supply Tube and Compression Fitting.

7. Remove the Hose Connector from the Coupling (29).
8. Unscrew the Swivel Connector (30) and unscrew the Coupling from the Hose.

Assembly of the Cold Air Channel

1. Screw the Coupling (29) on the Hose (31).
2. Screw on the Swivel Connector (30).
3. Insert the Hose in the Coupling.
4. Install the Supply Tube (34) and Compression Fitting (37) with Spacer (36).
5. Install the Retaining Ring (35).
6. Install the O-ring (40) and screw the Swivel Connector on the Compression Fitting.
7. Slide the Hose over the Adapter Sleeve (38).
8. Slide the Supply Tube Assembly (34) into the sander housing.
9. Install the Spring Clamp (35) to secure the Hose.

MAINTENANCE SECTION

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power or low free speed	Insufficient air pressure	Check air line pressure at the Inlet of the tool. It must be 90 psig (6.2 bar/620 kPa).
	Cold air head frozen	Shut down the CFS200A Unit and allow the tool to warm for about 1/2 hour.
	Clogged muffler elements	Disassemble the tool and agitate the bare Motor Housing and Flange in a clean, suitable cleaning solution. If the elements cannot be cleaned, replace the Motor Housing and/or the Flange.
	Plugged Inlet Screen	Clean the Inlet Screen in a clean, suitable, cleaning solution or replace the Screen.
	Worn or broken Vanes	Install a complete set of new Vanes.
	Worn or broken Motor Housing	Replace the Motor Housing.
	Internal air leakage in the Motor Housing indicated by high air consumption/low speed.	Replace the Motor Housing.
	Grit buildup under the Throttle Lever restricting full Throttle Valve Plunger movement.	Remove the Throttle Lever and clean the groove in the Motor Housing.
	Bent stem on Throttle Valve	Replace the Throttle Valve
Excessive runout	Bent Arbor	Replace the Arbor.
Scoring of Eng Plate	Worn Front End Plate.	Install a new Front End Plate.
	Worn Front Rotor Bearing	Install a new Front Rotor Bearing.
Leaky Throttle Valve	Dirt accumulation on Throttle Valve or Throttle Valve Seat	Disassemble, inspect and clean parts.
	Worn Throttle Valve or Throttle Valve Seat	Replace the Throttle Valve and/or Throttle Valve Seat.
	Excessive dirt build-up beneath the Throttle Lever	Clean out the slot area.
	Bent Throttle Valve Plunger	Replace the Plunger.
Front Rotor Bearing runs hot	Incorrect Front Rotor Bearing installation orientation	Remove the Bearing and install it correctly or replace the Bearing.
Slow tool idle	Bent or leaky Throttle Valve	Replace the Throttle Valve.
Rough operation/vibration	Improper lubrication or dirt buildup	Disassemble the tool and clean in a clean, suitable, cleaning solution. Assemble the tool and inject 3 cc of the recommended oil into the Inlet and run the Buffer long enough to coat the internal parts with the oil.
	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Replace the worn or broken Bearings.
Excessive ice build-up on cold air head	Air pressure is set too high in either the idle or operating mode	Refer to Operator's Manual (Form 7377) for adjustment of pressure regulator. Shut CFS200A Unit down and allow it to warm for approximately 1/2 hour.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

NOTES