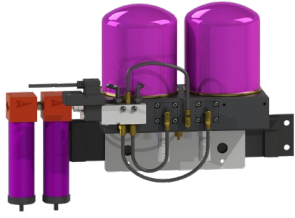


THE FOLLOWING USER MANUAL APPLIES TO TSUNAMI PURE SERIES REGENERATIVE DRYERS

** Includes All Models with Moisture Minder Pneumatic Drain Valves **



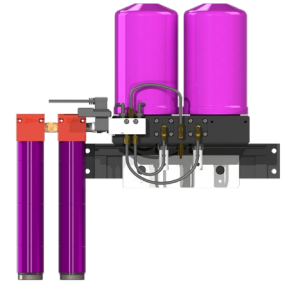
Pure-1, Pure-3, Pure-5



Pure-5T



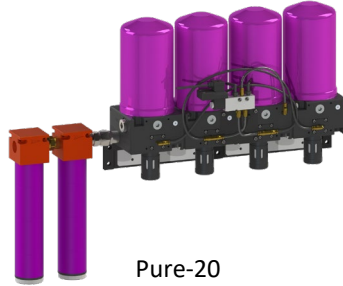
Portable Pure-5T



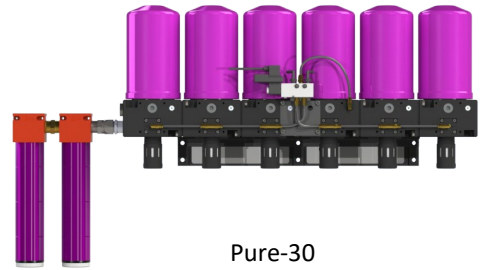
Pure-7



Pure-10



Pure-20



Pure-30

WARNING

Your safety is very important. Read all instructions before beginning any service or installation on your Tsunami Regenerative Dryer. Always wear safety eye protection when working with compressed air products. Failure to follow maintenance instructions could result in operating failure or product damage. System pressure must be released prior to any installation or service. Always install the system with the arrows indicating the direction of airflow. Use appropriate thread sealant on all connection fittings unless otherwise specified. Do not alter the dryer or filtration system from its original design as this may cause failure in its operational parameters.

DESCRIPTION

Congratulations on the purchase of your Tsunami Regenerative Drying System! By adhering to the specifications and maintenance schedule listed in the manual, your air system will provide years of service with minimal maintenance.

Incoming air enters the 1st stage water separator where water and particulates are removed down to 10 micron. The air then travels through the 2nd stage oil coalescing filter where oil aerosols are filtered down to .001 ppm and particulates are trapped down to .01 micron. The pretreated air enters the regenerative dryer where molecular sieve desiccant captures water vapor. Approximately every 2 minutes (90 seconds for 12v timers) the timer sends out a signal causing an internal piston to shift. The shift in the piston redirects air flow through the opposite dryer canister(s); dryers are available with alternative voltage options. The Tsunami Regenerative Drying System can provide dew points down to -80°F and relative humidity down to .01% RH. All dryers come standard with automatic drains to assure proper discharge of all contaminants captured in the water separator and oil coalescing filter.

| Dryer P/N | Regeneration | # of | # of Towers | # of Towers |
|------------|--------------|--------|-------------|--------------|
| | Orifice | Towers | Drying | Regenerating |
| 21999-1134 | .012 | 2 | 1 | 1 |
| 21999-1138 | .015 | 2 | 1 | 1 |
| 21999-1105 | .018 | 2 | 1 | 1 |
| 21999-1100 | .018 | 2 | 1 | 1 |
| 21999-1140 | .024 | 2 | 1 | 1 |
| 21999-1010 | .030 | 2 | 1 | 1 |
| 21999-1020 | .030 | 4 | 2 | 2 |
| 21999-1030 | .030 | 6 | 3 | 3 |

DRYER SPECIFICATIONS

| Maximum Inlet Air Temperature: 150°F | | Maximum Pressure: 175 psi | | |
|--------------------------------------|----------|---------------------------|-------------|---------|
| Dryer P/N | Max Flow | Inlet Port | Outlet Port | Weight |
| 21999-1134 | 5 CFM | 1/4" NPT | 1/2" NPT | 42 lbs |
| 21999-1138 | 10 CFM | 1/4" NPT | 1/2" NPT | 42 lbs |
| 21999-1105 | 15 CFM | 1/4" NPT | 1/2" NPT | 42 lbs |
| 21999-1100 | 15 CFM | 1/4" NPT | 1/4" NPT | 51 lbs |
| 21999-1140 | 25 CFM | 1/2" NPT | 1/2" NPT | 54 lbs |
| 21999-1010 | 40 CFM | 1/2" NPT | 1" NPT | 62 lbs |
| 21999-1020 | 80 CFM | 1" NPT | 1" NPT | 112 lbs |
| 21999-1030 | 120 CFM | 1" NPT | 1" NPT | 135 lbs |

** Specifications also apply to MM versions of Pure Series Dryers as well as other voltage designations.

INSTALLATION & SERVICE REQUIREMENTS

IMPORTANT: Tsunami Regenerative Dryers are configurable in multiple variations. Before beginning installation it is important to determine the direction of air flow which best meets your installation application requirements. Failure to follow required maintenance schedule will void warranty.

Dryer Installation & Configuration pg. 2

Dryer Installation – Reservoir Tank Model pg. 3

6 Month Service pg. 4

- Replace Oil Coalescing Filter Element
- Inspect and lubricate pistons and piston bores

3 Year Service pg. 5

- Replacement of desiccant towers
- Replacement pistons

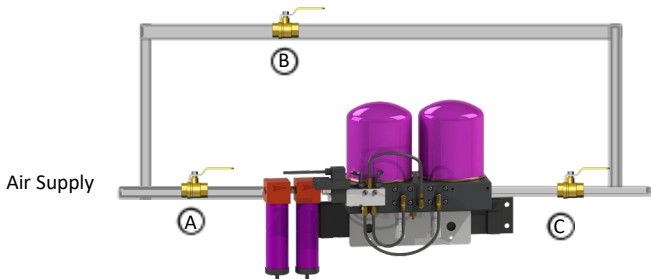
Parts Breakdown – Service Parts pg. 5

Troubleshooting Guide pg. 6

INSTALLATION INSTRUCTIONS - BYPASS CIRCUIT INSTALL

For ease of service, it is highly recommended to install a bypass circuit around the regenerative dryer. Follow the diagram below when installing a bypass circuit. Verify that system pressure is relieved prior to performing installation.

A. Inlet Ball Valve B. Bypass Ball Valve C. Outlet Ball Valve



Using the dryer: Open the inlet (A) and outlet (C) ball valves and close the bypass (B) valve to direct air flow through the regenerative dryer. This will provide clean, dry air downstream.

Bypassing the dryer: Close the inlet (A) and outlet (C) ball valves and open the bypass (B) valve to direct airflow around the dryer. This will allow service or maintenance to be performed without shutting down total compressed air supply.

INSTALLATION INSTRUCTIONS - DRYER INSTALLTION

IMPORTANT: Tsunami Regenerative Dryers are configurable in multiple variations. Before beginning installation it is important to determine the direction of air flow which best meets your installation application requirements.

All dryers contained in this manual follow the same installation procedures.

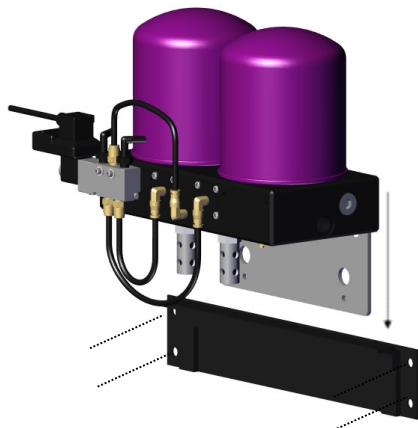


Figure 1

1. Remove all system pressure.
2. Using the appropriate hardware (not included), mount dryer bracket to wall. Be sure fasteners and mounting location can hold the weight of the dryer (see dryer specifications on page 1). *Figure 1*
3. Once the wall bracket has been properly secured to the wall, place the dryer mounting rail into the slot(s) of the wall bracket. *Figure 1*

INSTALLATION INSTRUCTIONS - DRYER INSTALLTION *cont.*

4. Install the supplied FEMALE JIC fitting to outlet port of the Tsunami pre-filter assembly. Use appropriate thread sealant. *Figure 2*
5. Determine preferred direction of flow. **IMPORTANT:** Inlet air must travel through the Tsunami filters prior to entering the regenerative dryer.
6. Using the appropriate thread sealant, install the MALE JIC connector to either the left or right INLET / AUX port of the dryer. *Figure 2*

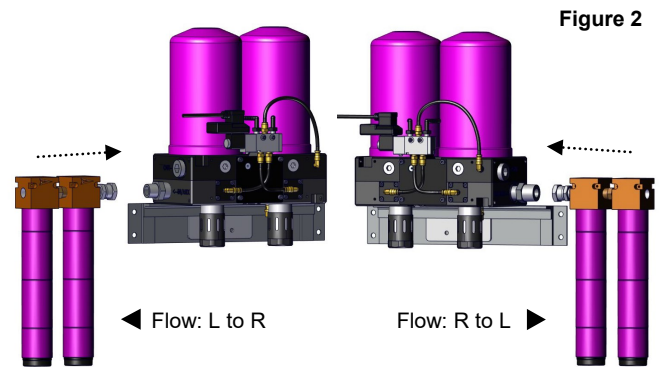


Figure 2

7. Using an adjustable or 5/8" wrench, plug the remaining open ports with the provided 1" port plugs and large hex tool. Use appropriate thread sealant.
8. Attach the filter assembly to the dryer housing by connecting the MALE and FEMALE JIC fittings. Tighten firmly.
9. (MM MODELS ONLY) Use provided 3/4" black nylon tubing to connect Moisture Minder® Filter Drains to "T" fitting(s) located on dryer housing. Excess tubing can be cut to length. *Figure 3*

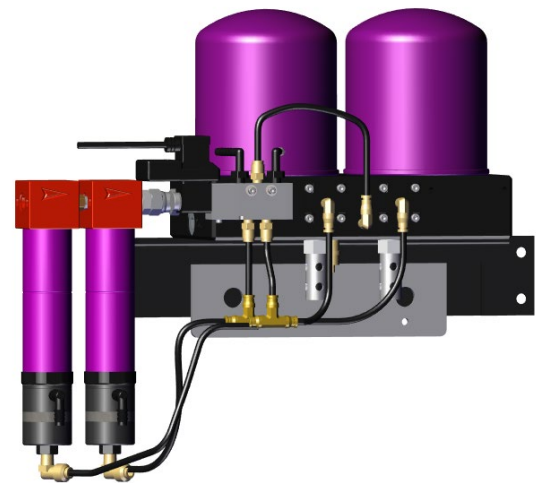


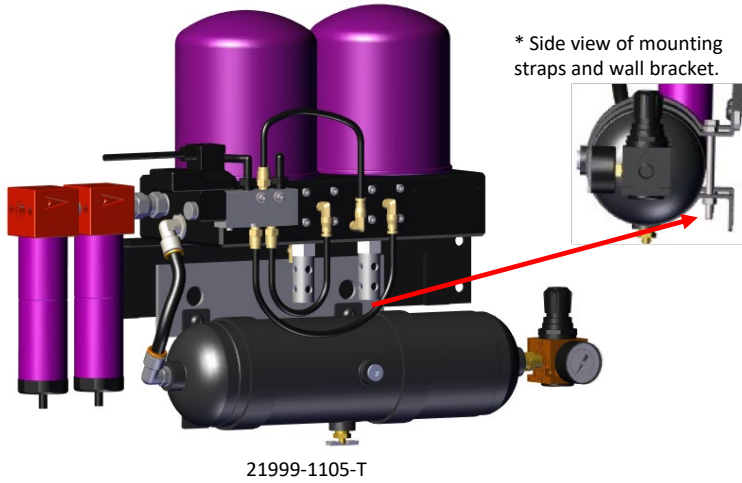
Figure 3

10. (MM MODELS ONLY) Attach 3/8" clear plastic tubing to barbed fittings on the Moisture Minder® Filter Drains. Follow all local and state regulations when routing the drain line condensate discharge.
11.
 - a. For 110v dryers, plug unit into wall.
 - b. For 220v dryers, install a 220/230/240 single phase plug on flying leads and plug into appropriate outlet or hardwire into gauge box. Make sure all local electrical codes are followed and that work is performed by a qualified representative.
 - c. For 12v and 24v dryers, be certain to properly terminate the positive and negative wires for the correct polarity.

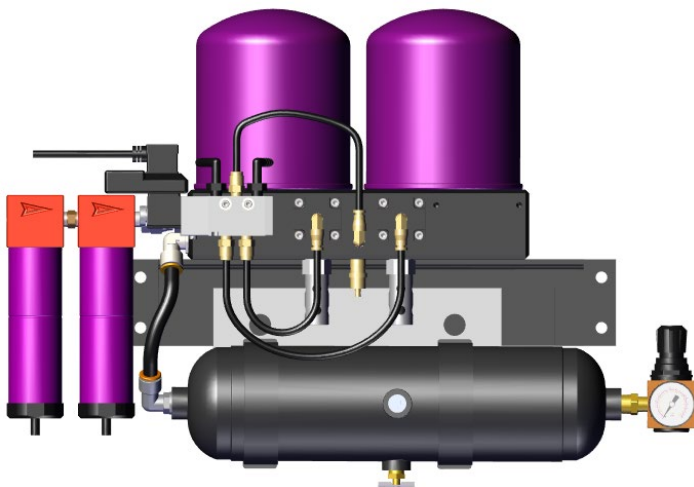
INSTALLATION INSTRUCTIONS FOR PURE-5T - Install Tank

IMPORTANT: Tsunami Regenerative Dryers are configurable in multiple variations. Before beginning installation it is important to determine the direction of air flow which best meets your installation application requirements.

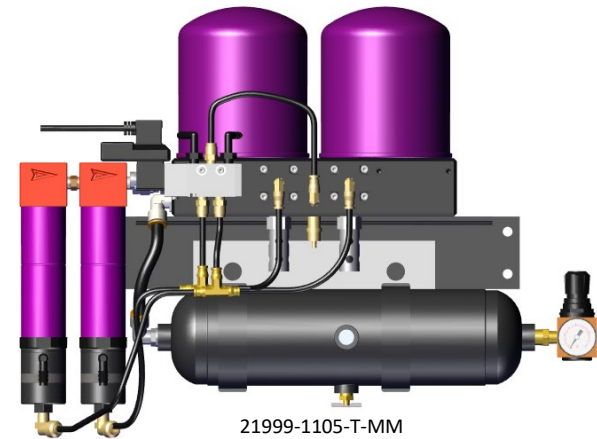
All dryers contained in this manual follow the same installation procedures.



1. Follow dryer installation steps on Page 2 prior to installing 1-gallon reservoir tank.
2. Install tank using universal mounting straps. Wrap straps around front of tank and secure on backside of tank. Using 5/16" cap screws, affix straps to wall bracket. Tighten bands on tank using 1/4" x 3" cap screws.

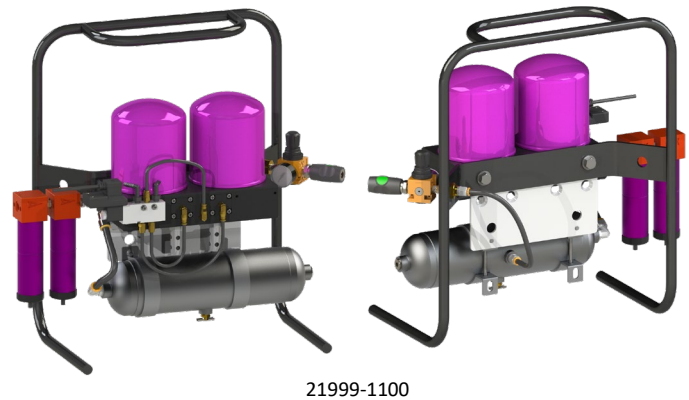


3. Install 1/2" tubing from dryer to tank using push to connect fittings.



4. (MM Model Only) Attach 3/8" clear plastic tubing to the plastic elbows on the side of the Moisture Minder® Filter Drains. Follow all local and state regulations when routing the drain lines.
5.
 - a. For 110v dryers, plug unit into wall.
 - b. For 220v dryers, install a 220/230/240 single phase plug on flying leads and plug into appropriate outlet or hardwire into gauge box. Make sure all local electrical codes are followed and that work is performed by a qualified representative.
 - c. For 12v and 24v dryers, be certain to properly terminate the positive and negative wires for the correct polarity.

INSTALLATION INSTRUCTIONS FOR PORTABLE PURE-5T



1. Assemble filters to dryer using supplied JIC fittings and tighten. No need to use any type of thread sealant for this connection.
2. Install tubing from tank to regulator using push connect fittings.
3. Install high flow coupler to regulator outlet.
4. Choose the appropriate inlet plug to install in the pre-filter assembly for the specific application (this may change from location to location) and connect to air source.

MAINTENANCE INSTRUCTIONS - COALESCING ELEMENT

6 Month Service

- Oil Coalescing Filter Element Replacement

Your safety is very important. Read all instructions before beginning any service or installation on your Tsunami Regenerative Dryer. Always wear safety eye protection when working with compressed air products. Failure to follow maintenance instructions could result in operating failure or product damage. System pressure must be released prior to any installation or service.

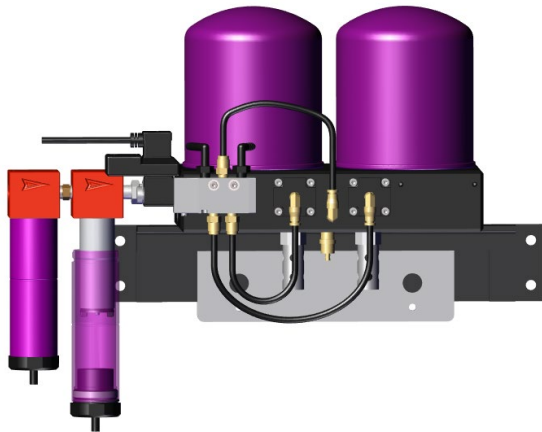


Figure 4

- Unplug unit from power source.
- Release all system pressure. (verify by pulling the safety valve)
- (MM MODELS ONLY) Disconnect the pilot line located at the bottom of the oil coalescing filter.
- Remove filter tube from filter head by holding filter head and rotating tube counter-clockwise.
- Remove bottom baffle, filter element, top adaptor, and O-ring. *Figure 5*

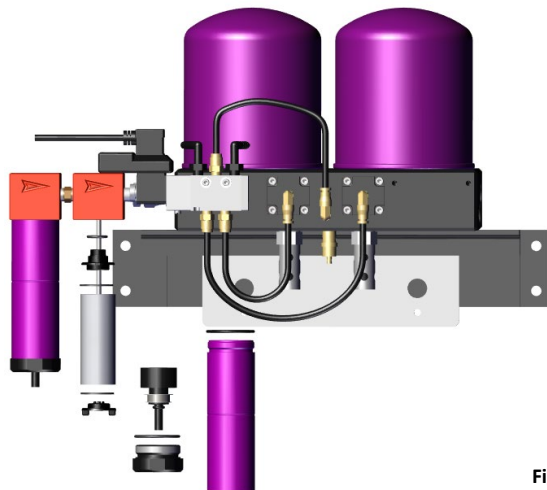


Figure 5

- Replace filter element and hardware in reverse order from previous steps. Tighten bottom baffle until filter element can no longer spin freely. DO NOT OVER TIGHTEN! Reinstall outer tube by rotating clockwise onto filter head.
- (MM MODELS ONLY) Reconnect pilot tubing and plug unit back into wall.
- Slowly pressurize the unit.

MAINTENANCE INSTRUCTIONS - PISTON LUBRICATION

6 Month Service

- Inspect and lubricate pistons and piston bores

Your safety is very important. Read all instructions before beginning any service or installation on your Tsunami Regenerative Dryer. Always wear safety eye protection when working with compressed air products. Failure to follow maintenance instructions could result in operating failure or product damage. System pressure must be released prior to any installation or service.

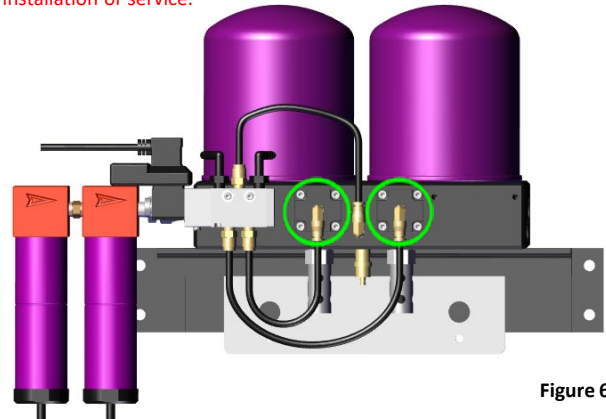


Figure 6

Note: There is one piston for each tower

- Unplug unit from power source.
- Release all system pressure. (verify by pulling the safety valve)
- Disconnect 1/4" tubing from quick-connect fitting located on piston cover. Push in on brass ring. While holding ring in, pull out tubing. *Figure 6*
- Using a 4mm hex key wrench, remove the four socket head cap screws holding the piston cover in place. *Figure 7*
- Remove piston cover for access to piston.
- Using a finger or a 1/2-13 bolt, remove the piston from the piston bore. Be sure to remove the piston spring. *Figure 7*
- Using o-ring grease, lubricate the piston bore. Grease thoroughly.
- Lubricate the top three O-rings located on the piston.

Note: It is not recommended to grease the front O-ring (small diameter).

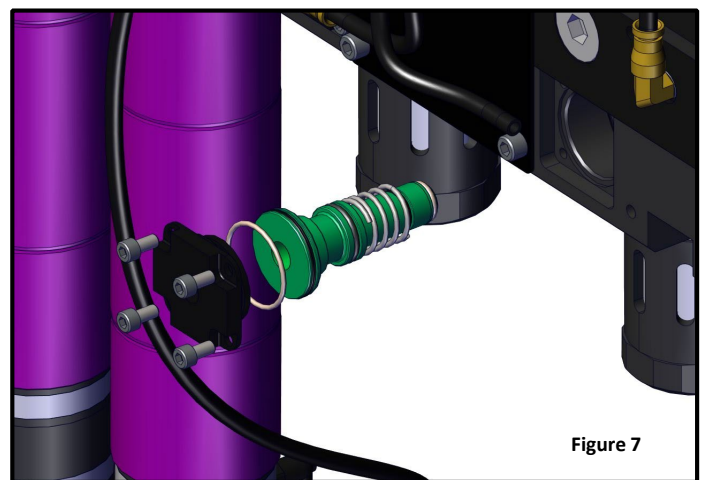


Figure 7

- Place spring back onto piston.
- Carefully insert piston back into piston bore. Press until piston is fully seated.
- Replace piston cover for access to piston.
- Using a 4mm hex key wrench, replace the four socket head cap screws holding the piston cover in place. Tighten until snug, then add 1/4 turn. *Figure 7*
- Reconnect tubing to quick-connect fitting located on piston cover. *Figure 6*
- Slowly pressurize the unit.

SERVICE INSTRUCTIONS - DRYER CANISTER REPLACEMENT

3 Year Service

- Replace desiccant towers
- Replace pistons

Your safety is very important. Read all instructions before beginning any service or installation on your Tsunami Regenerative Dryer. Always wear safety eye protection when working with compressed air products. Failure to follow maintenance instructions could result in operating failure or product damage. System pressure must be released prior to any installation or service.

1. Unplug unit from power source.
2. Release all system pressure. (verify by pulling the safety valve)
3. Using a strap wrench (if necessary), unscrew each canister from the top of the dryer housing. Discard spent canister.
4. Remove and discard small O-ring from dryer mounting stud.
5. Remove and discard large gasket from canister housing.
6. Clean top surface of dryer housing and mounting stud.
7. Using the supplied grease, apply light coating to the new O-ring. Install O-ring onto mounting stud. *Figure 8*
8. Apply a light amount of the supplied grease to both sides of the new canister gasket. *Figure 8*

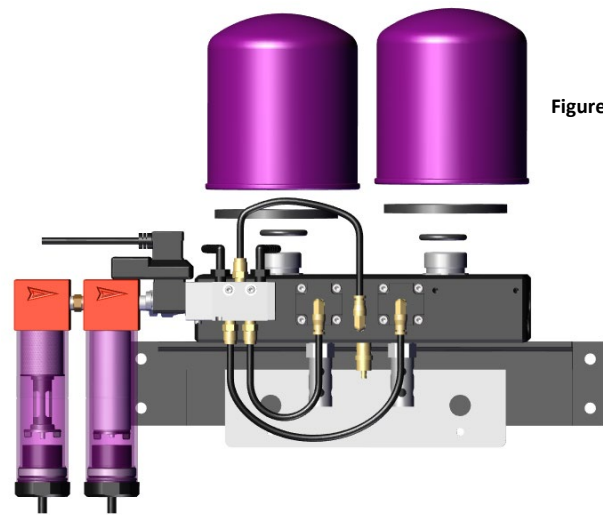


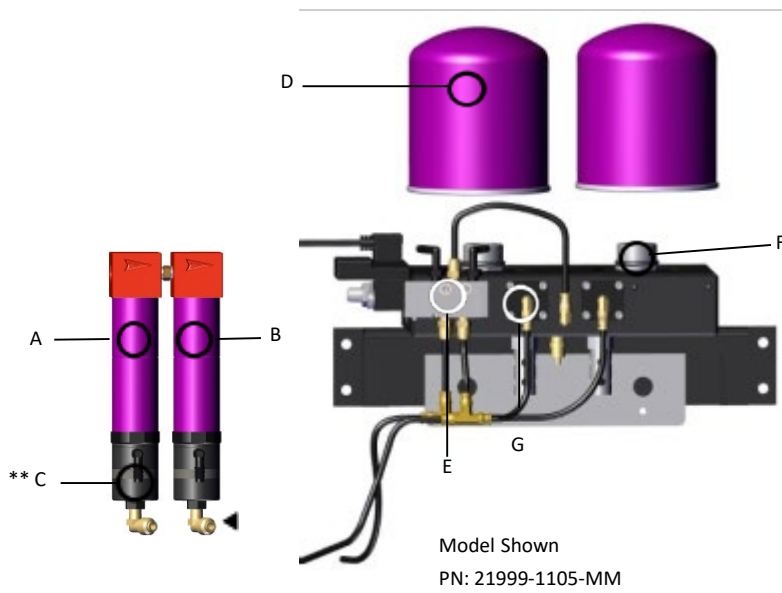
Figure 8

9. Thread new canister onto the mounting stud. Once gasket contacts adaptor plate, tighten canister.

** Pure-1, 3, 5: 1 Turn

** Pure-7, 10, 20, 30: ¼ to ½ Turn

TSUNAMI REGENERATIVE DRYER PARTS BREAKDOWN – SERVICE PARTS



Model Shown
PN: 21999-1105-MM

A Water Separator Service Kit

| Dryer P/N | Service Kit P/N |
|------------|-----------------|
| 21999-1134 | 21999-0846 |
| 21999-1138 | 21999-0846 |
| 21999-1105 | 21999-0846 |
| 21999-1100 | 21999-0846 |
| 21999-1140 | 21999-0227 |
| 21999-1010 | 21999-0227 |
| 21999-1020 | 21999-0228 |
| 21999-1030 | 21999-0228 |

B Oil Coalescing Service Kit

| Dryer P/N | Service Kit P/N |
|------------|-----------------|
| 21999-1134 | 21999-0394 |
| 21999-1138 | 21999-0394 |
| 21999-1105 | 21999-0394 |
| 21999-1100 | 21999-0394 |
| 21999-1140 | 21999-0202 |
| 21999-1010 | 21999-0202 |
| 21999-1020 | 21999-0202 |
| 21999-1030 | 21999-0202 |

C Moisture Minder® Filter Drain Replacement

| Dryer P/N | Drain P/N |
|---------------|------------|
| 21999-1134-MM | 21999-0792 |
| 21999-1138-MM | 21999-0792 |
| 21999-1105-MM | 21999-0792 |
| 21999-1100-MM | 21999-0792 |
| 21999-1140-MM | 21999-0795 |
| 21999-1010-MM | 21999-0795 |
| 21999-1020-MM | 21999-0805 |
| 21999-1030-MM | 21999-0805 |

** Automatic Float Drain Replacement

PN: 21999-0868

Applies to all standard Pure Series dryers

D Dryer Desiccant Canister Replacement P/N: 21999-0976

| Dryer P/N | Drain P/N |
|------------|------------|
| 21999-1134 | 21999-0976 |
| 21999-1138 | 21999-0976 |
| 21999-1105 | 21999-0976 |
| 21999-1100 | 21999-0976 |
| 21999-1140 | 21999-0349 |
| 21999-1010 | 21999-0349 |
| 21999-1020 | 21999-0349 |
| 21999-1030 | 21999-0349 |

E Solenoid Timer Valve Replacement All 120v Dryers P/N: 21999-0941

** All other dryer voltages require air valve and timer/coil assembly to be purchased separately

| Dryer Voltage | Description | Part Number |
|---------------|-------------------------------|---------------|
| 12 vdc | Air Valve Replacement | 21999-0797-12 |
| | 12 VDC Timer / Coil Assembly | 21999-0504 |
| 24vdc | Air Valve Replacement | 21999-0797 |
| | 24 VDC Timer / Coil Assembly | 21999-1012-24 |
| 240v | Air Valve Replacement | 21999-0797 |
| | 220 VAC Timer / Coil Assembly | 610934-01 |
| 110v | Air Valve Replacement | 21999-0797 |
| | 110 VAC Timer / Coil Assembly | 610928-01 |

F Tower Stud/Regeneration Valve

| Dryer P/N | Drain P/N |
|------------|---------------|
| 21999-1134 | 21999-1108-12 |
| 21999-1138 | 21999-1108-15 |
| 21999-1105 | 21999-1108-18 |
| 21999-1100 | 21999-1108-18 |
| 21999-1140 | 21999-0650-24 |
| 21999-1010 | 21999-0650-30 |
| 21999-1020 | 21999-0650-30 |
| 21999-1030 | 21999-0650-30 |

G Piston Replacement Kit ALL DRYERS P/N: 21999-0707

TROUBLESHOOTING GUIDE - TSUNAMI REGENERATIVE DRYER

| PROBLEM | PROBABLE CAUSE | CORRECTION |
|--------------------------------|---|---|
| Water / Oil Carryover | <ul style="list-style-type: none"> A. Water Separator not properly draining B. Moisture Minder® Drain not working C. Coalescing filter element cracked or saturated D. Desiccant tower saturated or oil carryover has gotten on the media E. Over flowing dryer F. Dryer not sized properly | <ul style="list-style-type: none"> A. Remove and verify automatic drains are functioning. B. Replace drain. C. Replace coalescing filter element. See Maintenance Instructions Page 4. D. Replace desiccant canister. See Service Instructions Page 5. E. Reduce the SCFM being used downstream of dryer. Contact Distributor. F. Contact your distributor for more info. |
| Excess Air Purging Out Muffler | <ul style="list-style-type: none"> A. Piston stuck | <ul style="list-style-type: none"> A. Grease or replace piston. See Maintenance Instructions Page 4. |
| Dryer Not Cycling | <ul style="list-style-type: none"> A. Power cord damaged B. Solenoid Timer Valve not properly working | <ul style="list-style-type: none"> A. Replace power cord. Contact your distributor for more information. B. Replace solenoid timer valve. |

Tsunami Compressed Air Solutions is a division of



Suburban Manufacturing Group 10531 Dalton Ave NE Monticello, MN 55362 USA
 (800)782-5752 fax (763) 295-6601