



THIS USER MANUAL APPLIES TO TSUNAMI ULTRA REGENERATIVE DRYERS – Wall and Tank Mounted



21999-0710



21999-0715



21999-0720
21999-0730



21999-0810



21999-0815



21999-0820
21999-0830



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 operation 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. This Tsunami Regenerative Drying System can provide dew points down to -80°F and relative humidity down to .01% RH. All Ultra dryers come standard with Moisture Minder Pneumatic Drains to assure proper dispersal of all contaminants captured in the water separators and oil coalescing filters.

These dryer configurations operate by cycling the towers as follows:

Part Number	Regeneration Orifice	# of Towers Drying	# of Towers Regenerating	Cycle Time for Tower Shifting
21999-0710	.030	1	1	2 minutes
21999-0715	.045	2	1	1 Minute
21999-0720	.030	2	2	2 Minutes
21999-0730	.060	3	1	45 Seconds
21999-0810	.030	1	1	2 minutes
21999-0815	.045	2	1	1 Minute
21999-0820	.030	2	2	2 Minutes
21999-0830	.060	3	1	45 Seconds

Incoming air enters the pre-filters removing bulk contaminants; water, oil, and particulates. The pretreated air enters the regenerative dryer where molecular sieve desiccant captures water vapor. The Programmable Logic Controller (PLC) sends out a pilot signal to an internal piston to shift tower(s) into regeneration mode.

DRYER SPECIFICATIONS

Maximum Inlet Air Temperature: 150°F Maximum Pressure: 175 psi
Inlet Ports: 1" NPT Outlet Ports: 1" NPT

Dryer P/N	Max Flow	Weight
21999-0710	40 CFM	63 lbs
21999-0715	60 CFM	73 lbs
21999-0720	80 CFM	93 lbs
21999-0730	120 CFM	118 lbs
21999-0810	40 CFM	335 lbs
21999-0815	60 CFM	358 lbs
21999-0820	80 CFM	381 lbs
21999-0830	120 CFM	381 lbs

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.

Wall-Mounted Installation Instructions pg. 2

Tank-Mounted Installation Instructions pg. 3

6 Month Service, Every 6 Months - indicated by PLC notification pg. 4

- Replace oil coalescing filter elements
- Lubricate pistons and piston bores

1 Year Service pg. 4

- Inspect pistons - replace if excessive wear

3 Year Service pg. 5

- Replace desiccant canisters
- Replace pistons

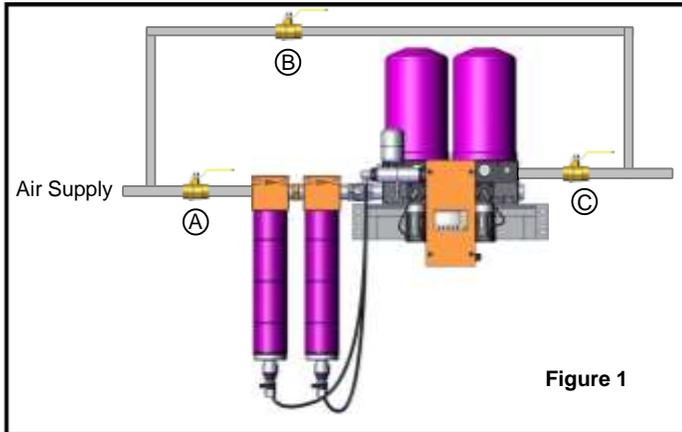
PLC Programming pg. 5

Parts Breakdown – Service Parts pg. 6

Troubleshooting Guide pg. 7

INSTALLATION INSTRUCTIONS-BYPASS CIRCUIT INSTALL-WALL MOUNT ONLY

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) ball 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) ball valve to direct airflow around the dryer. This will allow service or maintenance to be performed without shutting down total compressed air supply. Release system pressure by opening filter drain ball valve.

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.

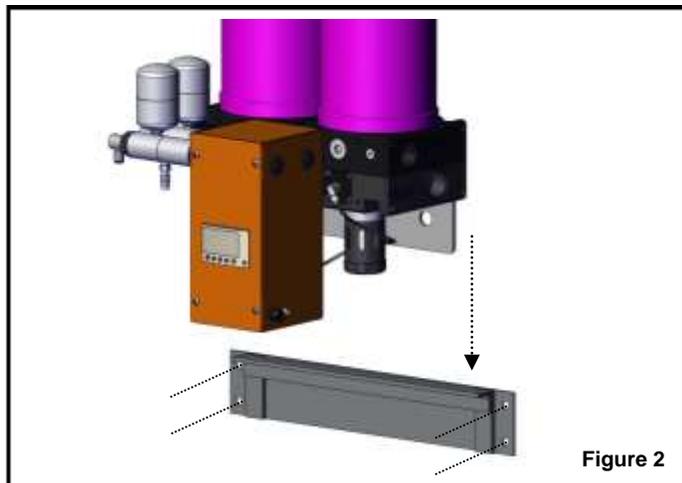


Figure 2

1. Remove all system pressure.
2. Using the appropriate hardware (not included), mount dryer bracket to wall. *Figure 2*
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 2*

INSTALLATION INSTRUCTIONS - DRYER INSTALLTION cont.

4. Using an adjustable or 1-3/8" wrench, connect the supplied FEMALE JIC fitting to the outlet port of the Tsunami pre-filter assembly. Use appropriate thread sealant. *Figure 3*
5. Determine preferred direction of flow.
6. Using the appropriate thread sealant, install the MALE JIC connector to either the left or right INLET / AUX port of the dryer. *Figure 3*

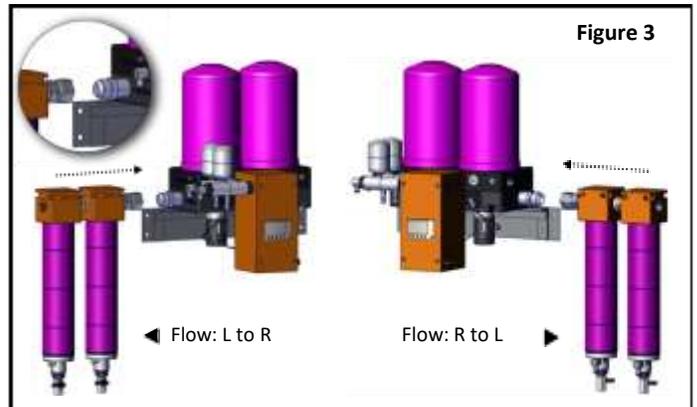


Figure 3

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. Use the provided 1/4" black nylon tubing to connect the Moisture Minder® Piston Drains to the strainers located on the bottom of each filter housing. Excess tubing can be trimmed to length. *Figure 4*

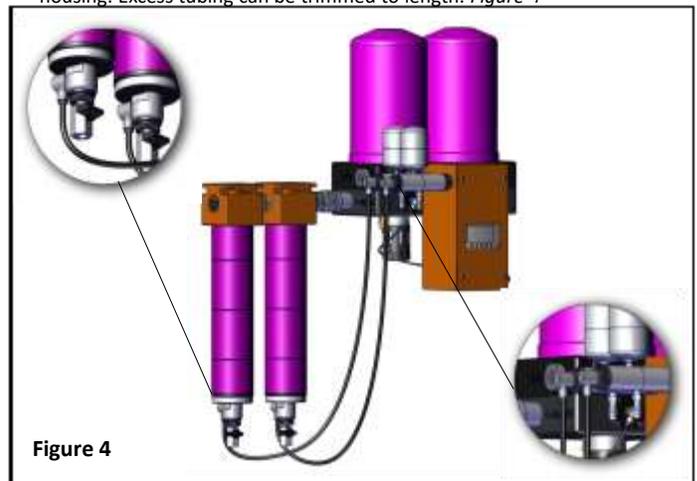


Figure 4

10. Attach 3/8" clear plastic tubing to the bottom of the Moisture Minder® Piston Drains. Follow all local and state regulations when routing the drain lines.
11. Connect power. Plug in wall pack adaptor to the PLC Control Box. Make sure to snug up the lock nut located on the PLC end of the power supply and then plug wall pack into 120v outlet
12. For 24v dryers, plug cord barrel into PLC then connect to power source; be certain to properly terminate the positive and negative wires for the correct polarity.
13. For international dryer installation, use global power supply with correct prong adaptor for the region. The global power supply requires 100-240v, single phase input power. Plug cord barrel into PLC and then connect power supply to power source.

** Reference chart below for your specific prong requirement.



BYPASS CIRCUIT OPERATION – TANK MOUNT ONLY

For ease of service, the Tsunami Ultra Series Tank-Mounted Regenerative Dryers come complete with a built-in bypass system.



A. 3-Way Inlet/Bypass Ball Valve B. Outlet Ball Valve

Using the Dryer: Turn the 3-Way Inlet/Bypass Ball Valve (A) to direct air through the dryer (valve handle will be vertical) and closes off the bypass. Open the Outlet Ball Valve (B) to provide clean, dry air downstream into the tank (handle will be horizontal).

Bypassing the Dryer: Turn the 3-Way Inlet/Bypass Ball Valve (A) to direct the air directly into the tank (valve handle will be horizontal) and closes off air flow into the dryer. Close the Outlet Ball Valve (B) to prevent tank air from backfilling the dryer (handle will be vertical). Open the ball valves on the bottom of the filters to discharge pressure still contained in the dryer. This will allow for maintenance to be performed without shutting off the compressed air supply downstream. Release system pressure by opening the filter drain ball valve.

INSTALLATION INSTRUCTIONS



Figure 6

1. Remove all system pressure
2. Place the dryer in a suitable location and secure to the floor. Note, avoid mounting in locations exposed to direct sunlight or inclement weather.
3. Optional, when dryer is installed at point of use: Install check valve on tank inlet. Remove hose and elbow. Install check valve using appropriate thread sealant. Install elbow to check valve and hose to elbow.
4. Using appropriate thread sealant or thread tape, connect air system piping to the dryer inlet and outlet regulator.
5. Attach 3/8" clear plastic drain tubing to the bottom of the Moisture Minder® Piston Drains. Route drain lines to an appropriate collection area or drain. Follow all Federal, State, and Local regulations for condensate discharge when routing the drain lines.
6. Connect power. Plug in wall pack adaptor to the PLC Control Box. Make sure to snug up the lock nut located on the PLC end of the power supply and then plug wall pack into 120v outlet
7. For 24v dryers, plug cord barrel into PLC then connect to power source; be certain to properly terminate the positive and negative wires for the correct polarity.
8. Allow the dryer to fill the tank with clean, dry air and set the outlet regulator to the lowest pressure setting your system will allow to maximize your air system's efficiency.
9. For International dryer installation, use global power supply with correct prong adaptor for the region. The global power supply requires 100-240v, single phase input power. Plug cord barrel into PLC and then connect power supply to power source.

*** Reference chart on page 2 for your specific prong requirement.*

MAINTENANCE INSTRUCTIONS - COALESCING ELEMENT

6 Month Service, Every 6 Months - Indicated by PLC Notification

- Replace Oil Coalescing Filter Elements

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.

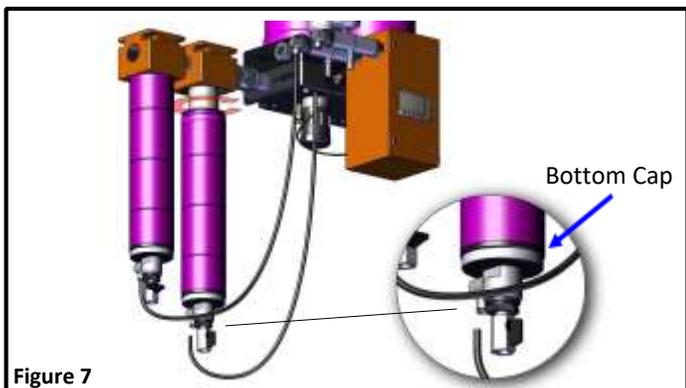


Figure 7

1. Release system pressure in the dryer, open either ball valve located on the bottom of the filter housing to verify there is no pressure remaining inside the unit. *Figure 7*

Note: When performing maintenance on a tank mounted dryer, either put the dryer into bypass mode (page 3) or release all air system pressure.

2. Disconnect the pilot line located at the bottom of the oil coalescing filter. *Figure 7*
3. Remove filter tube from filter head by rotating tube counter-clockwise.
4. Remove bottom baffle, filter element, top adaptor, and O-ring. *Figure 8*

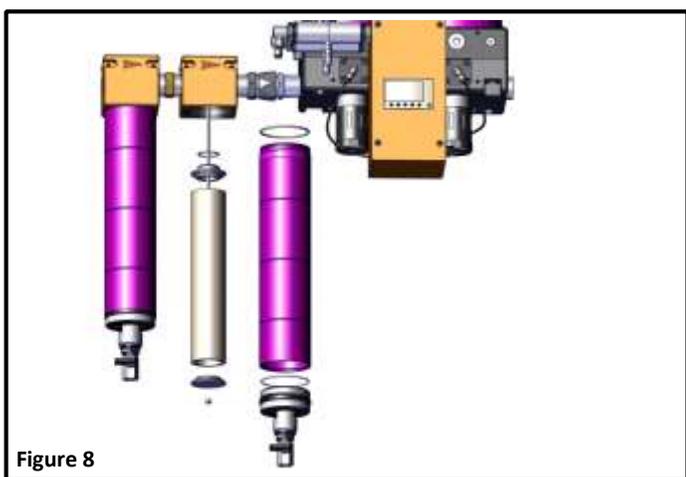


Figure 8

5. Replace filter element and hardware in reverse order from previous steps. Tighten baffle until filter element can no longer spin freely. **DO NOT OVER TIGHTEN!**
6. Install outer tube by rotating clockwise onto filter head.
7. Connect drain tubing and plug unit back into wall.
8. Slowly pressurize the unit.

Note: If pressurizing a tank mounted dryer, follow the directions for Using the Dryer (page 3) and if the entire air system pressure was released, put dryer into Use mode and then pressurize your air system.

MAINTENANCE INSTRUCTIONS -PISTON INSPECTION/REPLACEMENT

6 Month Service

- Inspect and lubricate pistons and piston bores

1 Year Service

- Inspect pistons, replace if excessive wear noticeable

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Failure to follow maintenance instructions could result in operating failure or product damage. System pressure must be released prior to any installation or service.

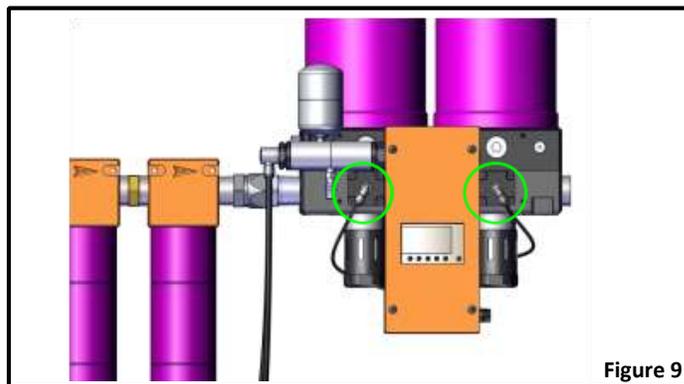


Figure 9

Note: There is one piston associated with each dryer cannister..

1. Release system pressure in the dryer, open either ball valve located on the bottom of the filter housing to verify there is no pressure remaining inside the unit. *Figure 7*

Note: When performing maintenance on a tank mounted dryer, either put the dryer into bypass mode (page 3) or release all air system pressure.

2. Disconnect tubing from quick-connect fitting located on piston cover. Push in on orange ring. While holding ring in, pull out tubing. *Figure 9*
3. Using a 4mm hex key wrench, remove the four socket head cap screws holding the piston cover in place; remove piston cover for access to piston. *Figure 10*
4. Using a 1/2-13 bolt, remove the piston; be sure to remove the piston spring. *Figure 10*
5. Use the provided grease in the element replacement kit to lubricate the piston bore. Grease thoroughly.
6. Lubricate the three black O-rings located on the piston.

Note: Avoid lubricating the small, cream colored O-ring at piston tip.

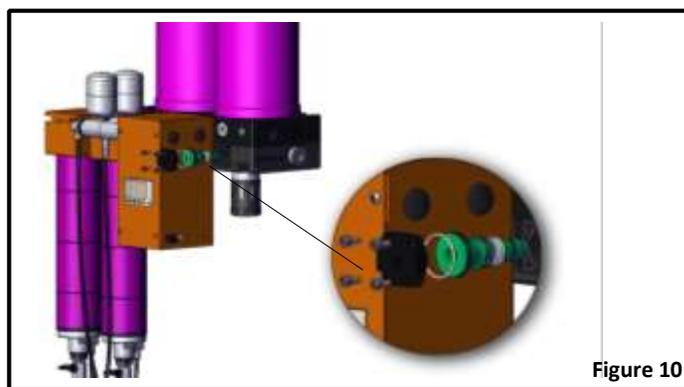


Figure 10

7. Install piston and piston spring.
8. Install the piston cover using the 4 socket head screws.
9. Connect pilot line tubing to quick-connect fitting located on piston cover.
10. Slowly pressurize the unit.

Note: If pressurizing a tank mounted dryer, follow the directions for Using the Dryer (page 3) and if the entire air system pressure was released, put dryer into Use mode and then pressurize your air system.

SERVICE INSTRUCTIONS - DRYER CANISTER REPLACEMENT

3 Year Service

- Replace desiccant canisters.
- Replace pistons – see Lubrication of Piston instructions (page 4)

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.

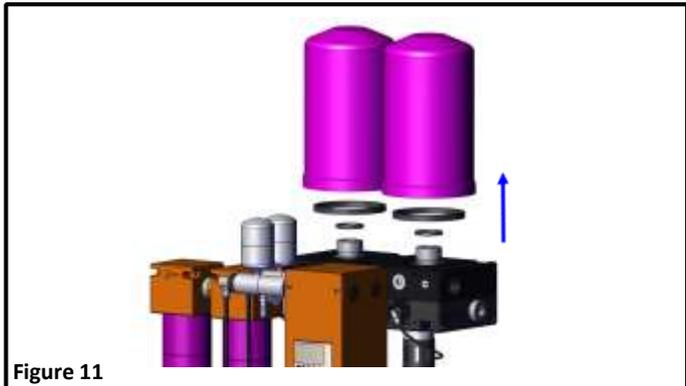


Figure 11

1. Release system pressure in the dryer, open either ball valve located on the bottom of the filter housing to verify there is no pressure remaining inside the unit. *Figure 7, Page 4*
Note: When performing maintenance on a tank mounted dryer, either put the dryer into bypass mode (page 3) or release all air system pressure.
2. Using a strap wrench (if necessary), unscrew each canister from the top of the dryer housing. *Figure 11*
3. Inspect small o-ring on mounting stud, replace if necessary.
4. Discard used canisters and prep for reassembly.

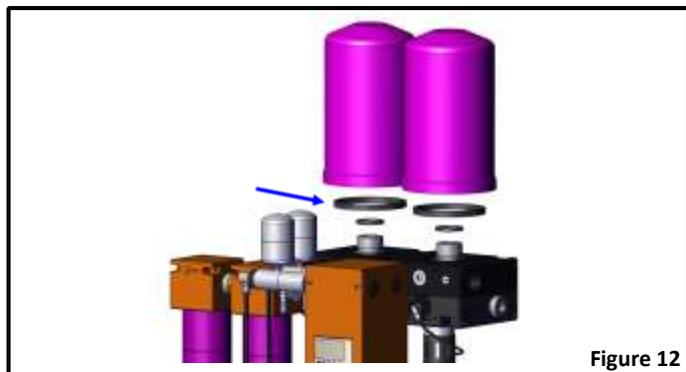


Figure 12

5. Clean top surface of dryer housing and regeneration valve.
6. Using the supplied grease, apply light coating to the small o-ring on the tower mounting stud.
7. Apply a light amount of the supplied grease to the new canister gasket. *Figure 12*
8. Thread new canister onto the regeneration valve. Once gasket contacts adaptor plate, tighten canister ¼ to ½ turn. DO NOT OVERTIGHTEN. Note: if tower gasket drops out of groove during installation, simply line up to groove while screwing tower down.
9. Slowly pressurize the unit.

Note: If pressurizing a tank mounted dryer, follow the directions for Using the Dryer (page 3) and if the entire air system pressure was released, put dryer into Use mode and then pressurize your air system.

SERVICE INSTRUCTIONS - PLC PROGRAMING

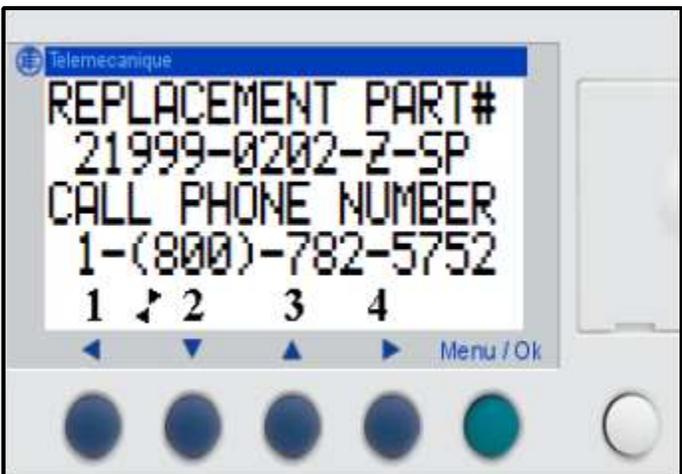
The PLC used on the Tsunami Regenerative Dryer is pre-programmed and will automatically start in run mode once the unit is plugged into your power supply.

The PLC has three basic display screens; RUN, STOP, AND WARNING. If the warning mode is displayed, perform the maintenance required on the oil coalescing pre-filters. Mandatory maintenance on the oil coalescing filters is required every six months. Failure to follow the mandatory maintenance schedule will void warranty.

Note: The following screens will be displayed every six months.

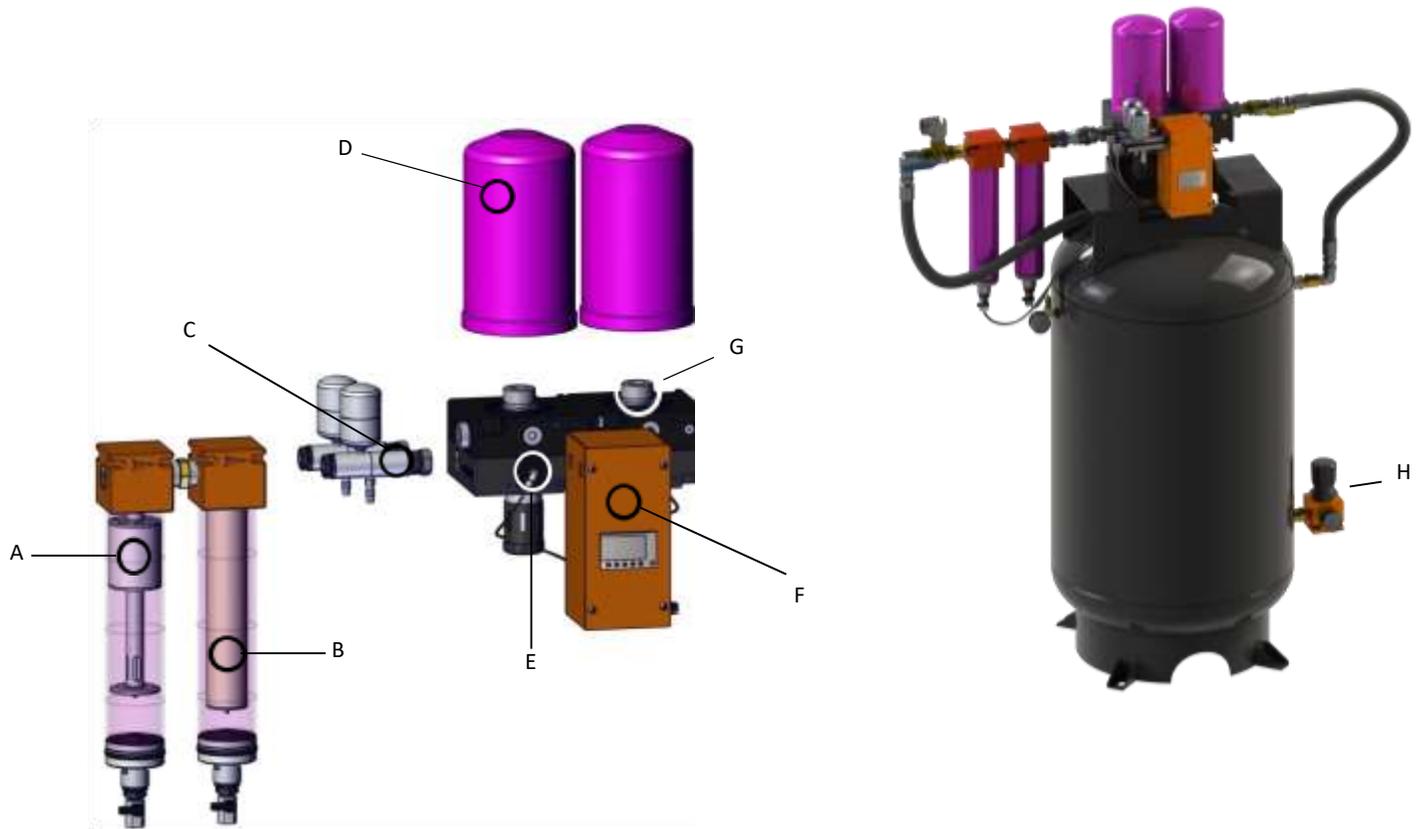


1. Change oil coalescing elements prior to resetting your PLC. For instructions on how to change element, see Maintenance Instructions for coalescing elements on page 4.
2. After the coalescing elements have been changed, press and hold the LEFT and RIGHT arrow keys simultaneously for 10-12 seconds to reset the PLC back to its original screen.



For all other displayed error messages, please contact Customer Service at [1.800.782.5752](tel:1.800.782.5752) or by email at info@gosuburban.com

TSUNAMI REGENERATIVE DRYER PARTS BREAKDOWN – SERVICE PARTS



- A** Water Separator
Service Kit P/N: 21999-0228
- B** Oil Coalescing Element
Service Kit P/N: 21999-0202-Z-SP
- C** Reverse Moisture Minder® Drains
Replacement P/N: 152-0000-R
- D** Dryer Desiccant Canister
Replacement P/N: 21999-0349
- E** Piston Service Kit
Replacement P/N: 21999-0707
- F** Programmable Logic Controller (PLC)
Replacement with Drains
10Hp Dryer: P/N 21999-0672-10
15Hp Dryer: P/N 21999-0672
20Hp Dryer: P/N 21999-0672
30Hp Dryer: P/N 21999-0672

PLC Power Supply and Cords
120 VAC: P/N 21999-0714
240 VAC: P/N 21999-0714-G (Int'l Dryers)
12 VDC: P/N 21999-1133
- G** Regeneration Valve Replacement P/N:
(see page 1 for specific dryer / orifice used)
21999-0650-30
21999-0650-45
21999-0650-60
- H** Regulator with Gauge
Replacement P/N: 21999-0872
(Ultra Tank Mounted Dryers Only)



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 coated the media. E. Over flowing dryer. F. Dryer not sized properly. 	<ul style="list-style-type: none"> a. Drain manually and verify the Moisture Minder® is cycling. 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 CFM being used downstream of dryer. Contact Distributor. f. Contact your distributor for more info.
Excess Air Cause Solutions	<ul style="list-style-type: none"> A. Piston stuck. B. Piston tip missing o-ring. C. Tower regeneration valve not seating properly. 	<ul style="list-style-type: none"> a. Grease or replace piston. See Maintenance Instructions Page 4. b. Replace piston. c. Replace tower regeneration valve.
Dryer Not Cycling at All	<ul style="list-style-type: none"> A. Power cord damaged. B. PLC in stop mode. 	<ul style="list-style-type: none"> a. Replace power cord. Contact your distributor for more information. b. Contact your distributor for more information.

Tsunami Compressed Air Solutions is a division of



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