PMT200A SERIES DEHYDRATOR

USER MANUAL

Bulletin AE01B-A0523-001

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TABLE OF CONTENTS

General Information
Section 1

1.1 Introduction

This manual contains the information you need to install, operate and maintain your PMT200A Series DryLine® dehydrator. Please take the time to read this manual before attempting to operate or service the unit.

1.2 Description

PMT200A Series dehydrators provide dry air for pressurizing small (up to 60 cubic feet, or 1700 liters, in volume) antenna and transmission line systems. The dehydrators produce -50ºF (-45ºC) dewpoint dry air at an output rate of 0.2 cubic feet (1.4 liters) per minute.

Each dehydrator consists of an electrically-driven air compressor, a membrane dryer assembly, an automatic transmission line pressure sensing system and alarm outputs housed in a rigid metal chassis. It is designed to mount directly to the wall or as a free-standing unit. The front panel features a control interface with display for alarms and pressure. For easy serviceability, power connections, alarm output connections and all filter elements are accessible from the top or front of the unit.

The PMT200A maintains transmission line pressures at 5.0 lb/in^2 (34 kPa). It is intended for standard microwave antenna applications and any other transmission line pressurization requirement that supports a medium pressure limit.

1.3 Operation

PMT200A Theory of operation.

The PMT200A series of DryLine dehydrators, while similar in moisture removal technology, operates differently than some of the DryLine series of dehydrators. In order to provide a constant supply of dry air to small air volume systems, and to maintain an acceptable dryness level in the product air stream, a high-pressure reservoir tank is utilized. This reservoir tank is connected to a pressure regulator and orifice to yield a fixed output pressure of 5.0 psi and a nominal flow rate of 0.2 SCFM. In addition to supplying the output air, the reservoir tank also provides the dry air for the feedback loop. The feedback loop is necessary to maintain the dryness of the membrane cartridge.

During normal operation, the bleed air in the feedback loop will cause the pressure to slowly drop in the internal reservoir tank, and the PMT200A compressor will cycle automatically. These cycles will take place regardless of the system volume or condition of the transmission line the dehydrator is connected to. The rate of these cycles, however, will vary.

When connected to a very tight system, or the output is capped, the dehydrator will cycle approximately every 60 minutes and maintain 5.0 psi system pressure when open to atmosphere, the dehydrator will cycle approximately every 3 minutes while providing close to 0.2 SCFM of dry air. A system that leaks will have a cycle time somewhere in between, depending on the severity of the leaks.

The display will also reflect a pressure between 0 and 5.0 psi while the output flow is between 0 and 0.2 SCFM. The pressure sensor senses pressure beyond the flow control orifice and will show the actual pressure in the transmission lines (or to the distribution manifold).

During the initial pressurization of the transmission line, the dehydrator will cycle every 2 to 4 minutes with the system at 0 psi pressure. As the dehydrator pressurizes the system, the cycle times will increase and the pressure will rise until the dehydrator output is balanced with the system leak, at which point the cycle times will stabilize.

1.4 Alarms

The PMT200A offers Low Pressure, Excess Run and Power Fail alarms as a standard feature. Alarm conditions are indicated on the display. Alarms are output as a common summary alarm, with a from C dry

contact. The alarm is set for continuity on alarm.

1.4.1 Multiple Alarm Option

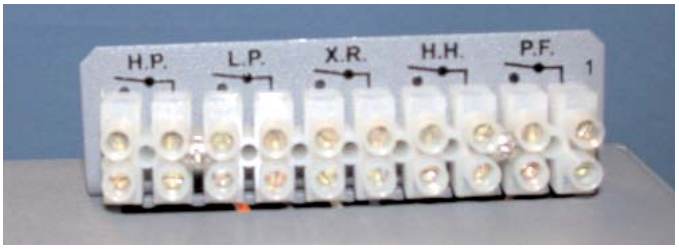
This optional assembly is designed to provide the additional High Humidity alarm to Andrew Dehydrators. All alarms are Form C dry contacts and are factory set for continuity at alarm (mains power fail alarm opens at alarm).

This optional assembly will also indicate discrete alarms on the display, and provide individual contacts and connections for discrete alarms.

The external alarm monitoring system (supplied by others) is connected to the terminal strip located on top of the cabinet. A small slotted screwdriver is necessary to make the connections.

The connection to the alarm strip is as follows, refer to Figure 1 for correct locations and colors of the wires on the terminal strip.

Summary Alarm



Multi Alarm

Figure 1

Term.	Function	Wire Color
1	Power Fail Com	Black
2	Power Fail Alarm	Red
3	Humidity Com	Green
4	Humidity Alarm	Brown
5	Excess Run Com	Blue
6	Excess Run Alarm	White
7	Low Press. Com.	Grey
8	Low Press. Alarm	Orange

Alarm Definitions:

Power Fail: Activates open when power is removed from the dehydrator. This includes turning the power off at the switch.

High Humidity: Activates when system or dehydrator output humidity rise above 7.5% relative humidity. At initial installation, this alarm will continue to alarm until the system has been properly purged.

Excess Run: Factory strapped run time set in accordance with the normal run time for the dehydrator application. Selectable times are 10, 30, 120 and 240 minutes, with the 10 minute selection used on the PMT200A.

Low Pressure: If system pressure falls significantly below the low-pressure trigger point, the low-pressure alarm sensor will activate an alarm contact. This alarm is an indication of a significant system leak or a dehydrator failure.

Changing Alarm Outputs:

Alarm	Factory setting	Where To Reset
Summary Alarm	Normally Open (N.O.)	TB3 on Control Board

Multiple Alarms

Alarm	Factory setting	Where To Reset
Low Pressure	Normally Open (N.O.) A-B	Low Pressure jumper JP4 on alarm PCB
Mains (Power)	Normally Closed (N.C.) B-C	Power Fail Jumper JP3 on Alarm PCB
Excess Run	Normally Open (N.O.) A-B	Jumper JP1 on Run Alarm PCB
High Humidity	Normally Open (N.O.) A-B	Jumper JP2 on Alarm PCB

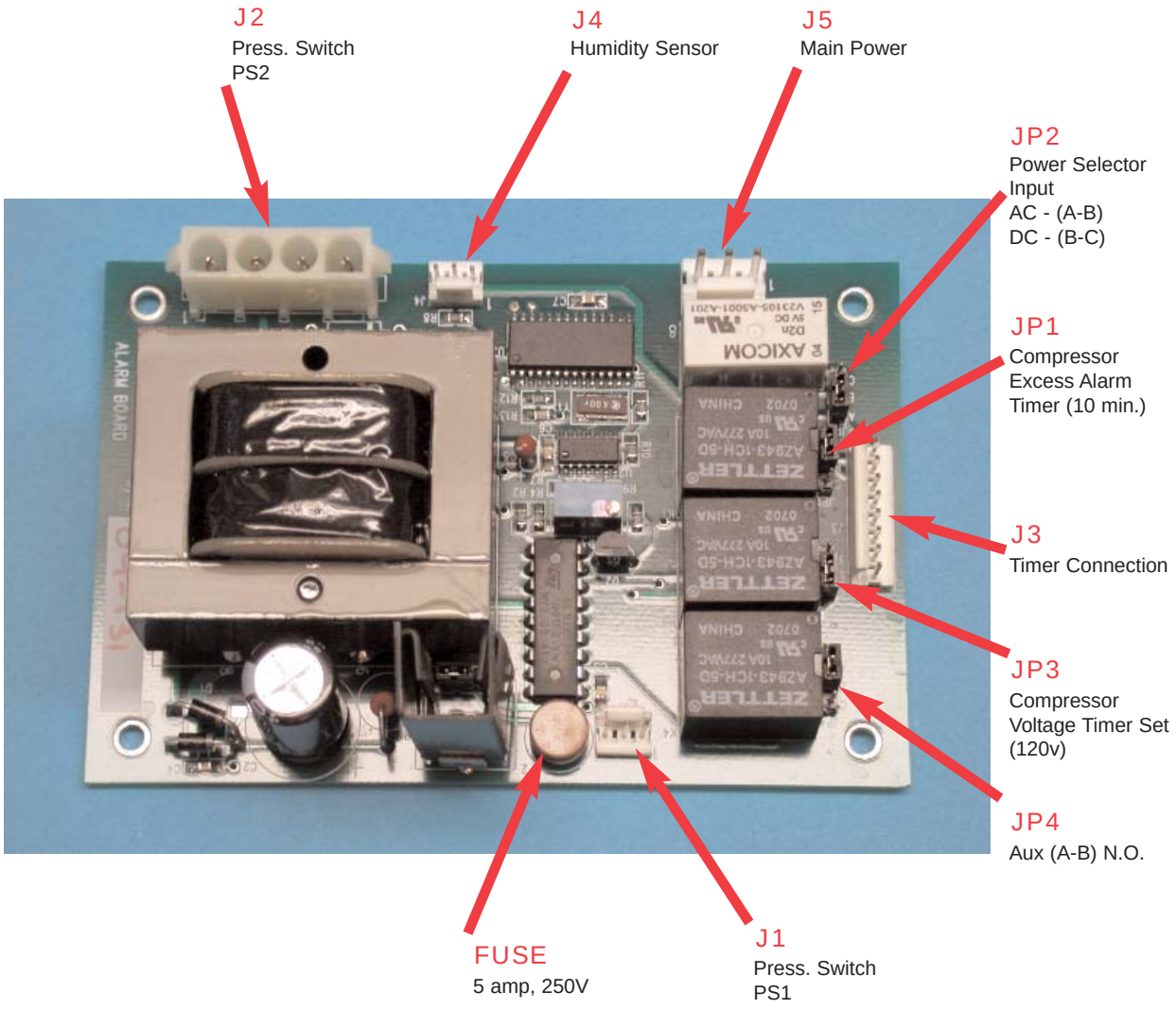


Figure 2

1.5 Specifications PMT200A Dehydrator

Output Pressure Constant	5.0 PSI (35kPa)	Output Connector	3/8" polytube, compression
Output capacity	12.0 SCFH (340liters/h) (total, approx.) 0.2 SCFM (5.6 liters/m)	Dimensions	18" W x 17.5" H x 7" D 457mm H x 444.5mm W x 178mm D
Output Dew Point,	-50°F (-45°C) or better	Weight	36 1/2 lbs 16.55 kg
Operating Temperature Range	-34° to +104° F (1° to +40° C)	Optional Alarms	
Low Pressure Alarm	1.0 lb/in^2 (6.9 kPa)	High Humidity Alarm Set Point	7.5% RH, factory set
Electrical Input	115/230 VAC, 50/60 Hz (auto switching)	Excess Run Alarm Set Point	10 minutes, factory set
		Power Fail Alarm	loss of input power

Installation
Section 2

2.1 Unpacking and Inspection

Open carton.

Remove the top piece of corrugated packing. Carefully remove the installation accessories and manual and dehydrator. Check the dehydrator for shipping damage such as dents or loose parts.

2.2 Controls and Displays

Familiarize yourself with the controls and displays prior to installing or testing the dehydrator.

ON/OFF Switch Toggles unit condition ON and OFF.

Mode Switch Toggles between modes.

Mode 1: **Displays pressure and total run hours.**

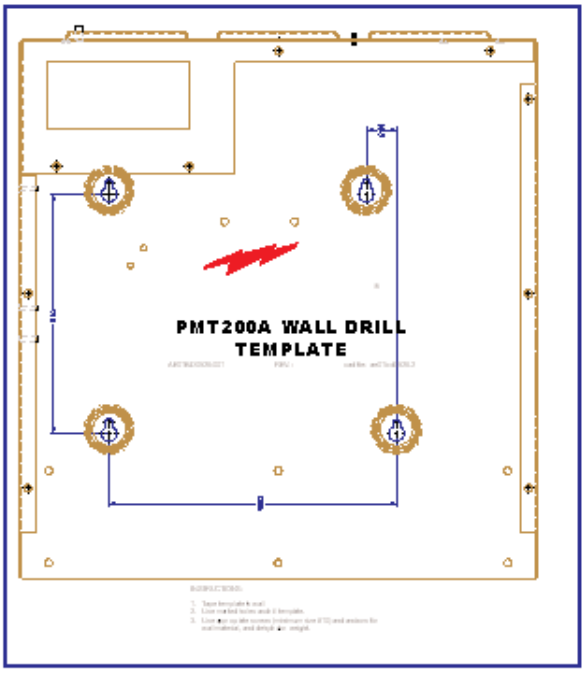
Mode 2: **Displays pressure and total run hours, flashes current condition.**

Mode 3: **Displays last ON and last OFF times.**

2.3 Installing the Dehydrator

2.3.1 Wall Mounting

See drill template AE01B-D0526-001.



2.4 Power Connections

Confirm your dehydrator electrical input matches the available power.

115 VAC/230 VAC, 50/60 Hz
(auto switching)
PMT200A-82015
PMT200A-82315

2.4.1 AC Power

AC units can be connected into a standard 15 Amp power receptacle of the proper voltage. Make sure the power circuit is properly grounded.

Two power cords are supplied, one 115 VAC American and one 230 VAC International.

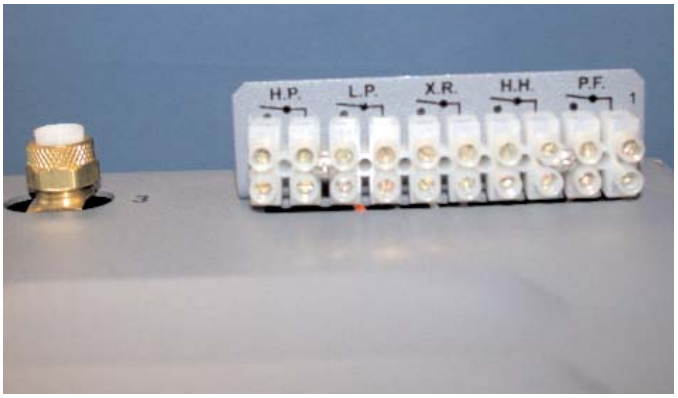
CAUTION:
Proper electrical connection is required. It is suggested a licensed electrician be contracted to connect the AC wiring to the unit, if it is connected directly to the mains. Failure to properly connect the power wires could result in a dangerous electrical shock hazard.

Test the Dehydrator

Turn the dehydrator ON and check the output ports on top of the unit to make sure air is flowing. To do this, make sure that corresponding shut-off valve is open and the plugs are removed from the ports.

2.5 Connecting the Alarm Outputs

To connect the alarms, locate the terminal block (TB-1) on top of the unit.



Place alarm connection wires in proper terminals and tighten the screw on the terminal block.

The relay contacts are rated at 2 A (non-inductive), 30 VDC.

Optional alarms (if purchased) will also be located on this terminal (see section 1.4 for terminal numbers).

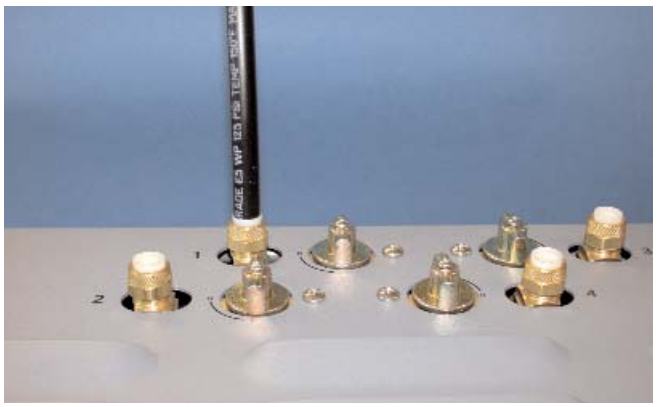
2.6 Connecting Dehydrator to the Transmission Line

CAUTION:

Check the antenna and transmission line system pressure rating before connecting the dehydrator to the system.

Insert one end of the 3/8" polytube feed line tubing into the compression fitting on the dehydrator output port. Tighten securely with a 9/16" wrench. Be careful not to over tighten. Connect the other end of the polytube to the transmission line.

Four air outputs are provided, with individual shut-off valves on the unit. Make sure that the valve is in the open position for each transmission line connection. If one of the output connections is not used, close the valve and leave the port capped.



Note:

If the transmission lines have not been purged, continue with section 2.7. Otherwise proceed to section 3.

2.7 Purging the Transmission Line

Air in the transmission line system must be replaced with dry air to ensure satisfactory operation of the transmitted signal.

1. Determine the total system volume.
2. Divide the system volume by the flow rate of the dehydrator (12 CFH) to determine the number of hours needed for the purge cycle.
3. Open the far end of the transmission line.
4. Operate the dehydrator for three purge cycles.

If it is not possible to open the far end of the transmission line, follow these steps:

1. Connect the dehydrator to the transmission line and pressurize the system. The system pressure should reach 5.0 PSI.
2. Wait 15 minutes while the air absorbs moisture in the system, then disconnect the dehydrator from the transmission line and allow the air to vent.
3. Repeat steps 1 and 2 twelve times to purge the system.

Maintenance
Section 3

3.0 Maintenance

The PMT200A Dehydrator requires relatively little maintenance to ensure satisfactory operation over long periods of time. This section outlines the recommended annual preventive maintenance for the unit and the suggested overhaul for every 6000 hours of compressor operation.

3.1 Regular Maintenance

The PMT200A Dehydrator will perform at an optimum if it is routinely checked for correct performance. This checking generally consists of an annual inspection of the condition of the air intake filter and an overhaul after every 6000 hours of compressor operation. Performance of these measures is sufficient to ensure continued reliable operation.

3.2 Preventive Maintenance

The annual maintenance of a PMT200A consists of a preventative maintenance inspection of the dehydrator and cleaning (or replacement) of the foam air intake filter.

These tasks can easily be performed in the field with the unit connected to the transmission line system and with only the front access door opened for maintenance.

3.3 Dehydrator Filter Element Replacement

Clean/replace the air intake filter

The air intake filter protects the compressor from contamination and dust. Periodic cleaning/replacement extents the life of the compressor.

To gain access to the element, push in on the cover and rotate the housing approximately 1/4 turn CCW.

The filter is made of a fibrous material. It should be replaced once a year (or more frequently, if the operating environment is very dusty.)

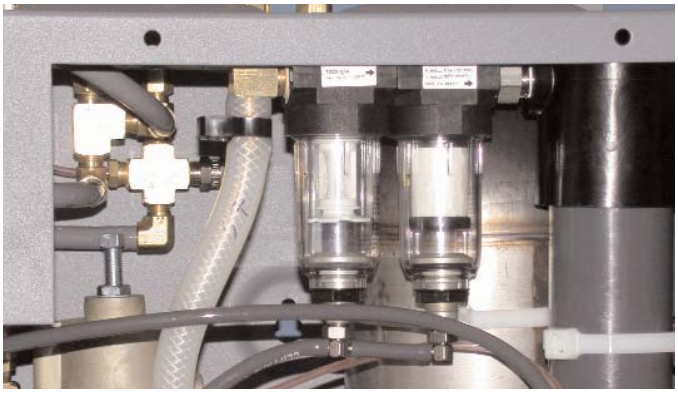
CAUTION:
Do not apply oil or other chemicals to the filter element.

Make sure the element is seated completely in the housing and then replace the cover. If a new element is used, discard the old element.

3.4 Annual Inspection

Warning:
Electrical Hazard! Unplug power cord before servicing unit.

Inspection includes checking for loose or damage hoses, fittings and electrical connections. Open the top panel or front door and verify that there is no water build-up in the two filter bowls located inside the front cover of the dehydrator. There may be some droplets of water in the filter bowels (the lower portion of each bowl), but there should be only a small amount of liquid in either bowl.



If there is excessive water, refer to the troubleshooting section. Replacement of the filter elements in the water filter and coalescing filter is covered in the overhaul section of this manual.

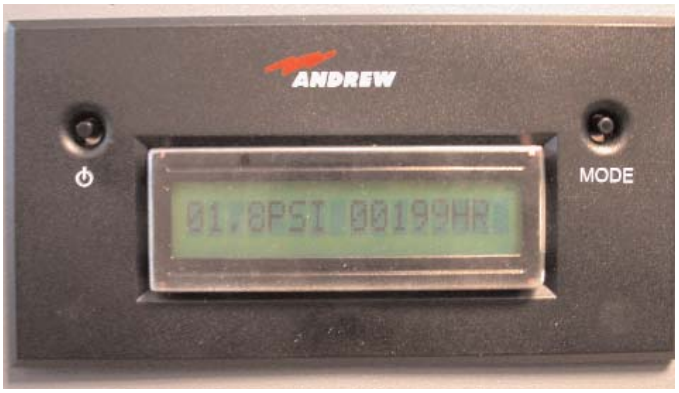
Check the electrical connections.

Check the screw at the power input connector to ensure that the AC power cord is securely terminated. Check the screw-in alarm terminals to ensure that all wire connections are tight.

A loose or damaged connection may result in erratic operation and unnecessary downtime. Refer to the troubleshooting section if an electrical problem is encountered.

Check the ground wire.

Check that an electrical safety ground is installed on the stud on top of the dehydrator. This connection point is adjacent the power input connector. (It is intended to be customer installed in the field.)



Check the hour meter

Check the hour meter on the front panel to determine the duty cycle of the dehydrator.

If the dehydrator has been running for more than 20% of its installed time, check the systems for leaks. Also check the time on the meter to determine if it is time to perform the 6000-hour overhaul.

3.5 Parts Replacement and Dehydrator Overhaul

Andrew PMT200A Dehydrators are designed to give many years of trouble-free service and require very minimal maintenance. The dehydrator contains, as a standard feature, an hour meter that records compressor run hours. To ensure continuous and reliable operation, the dehydrator must be overhauled every 6000 hours of compressor operation. The kit, listed below, contains all of the necessary parts to perform this overhaul. The dehydrator overhaul kit includes parts to overhaul the compressor and critical components in the dehydrator that often become worn over time.

IN CASE OF DIFFICULTY: If the dehydrator is not operating, refer to Section 2 on Installation and Section 4 on Troubleshooting the unit.

Tools

The following tools are used in the maintenance and overhaul procedures.

Adjustable open-end wrench
Allen wrench 5/32
#2 Phillips screwdriver
Small flat-blade screw-driver

Overhaul Procedure

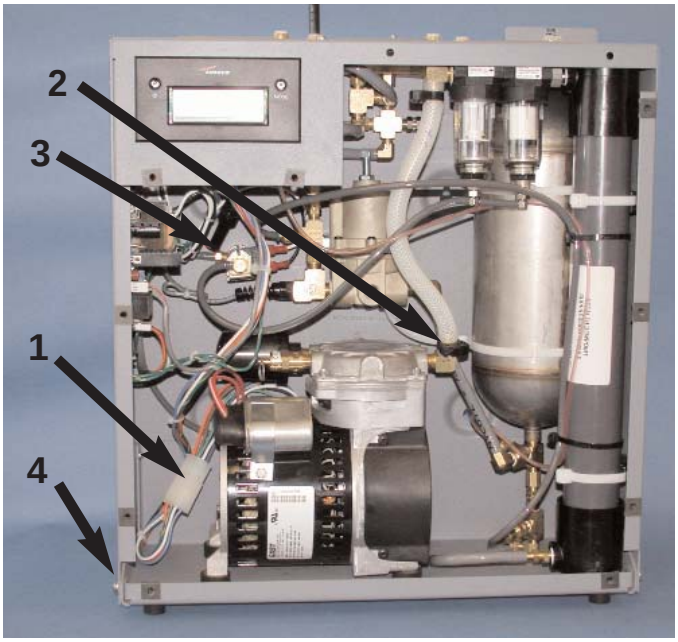
When the PMT200A compressor run time reaches 6000 hours (or a multiple of 6000 hours) it is time to replace certain items in the compressor and the air path of the dehydrator. These include the piston cups, piston seals and head gaskets of the compressor, the filter elements in the water and coalescing filters, and the tube section connecting the compressor output to the water filter input.

Unit Shutdown and Removal

In order to perform an overhaul on the PMT200A, the unit must be turned off and removed from service. As this is being done, the low pressure alarm may active through a reporting alarm system. Personnel monitoring such an alarm should be notified in advance so that they are aware of the fact that service is being performed. It is also necessary to disconnect the dehydrator dry air output from the waveguide system during the overhaul.

Remove the compressor for overhaul.

To remove the compressor, open the upper front panel of the unit.



1. Disconnect compressor wiring from control board.

2. Disconnect tubing from outlet of compressor.

3. Disconnect drain tubing from outlet of solenoid.

4. Remove screws holding compressor pan to chassis and remove pan/compressor assy from chassis.

Follow the instructions included in the compressor overhaul kit. When the overhaul is complete, reinstall.

3.6 Service Restoration

RECOMMENDATION:

If the dehydrator overhaul process has taken more than a few hours, it is recommended that the unit be run for one hour into the room, to purge the membrane dryer and tank of any acquired moisture, before reconnecting to the transmission line system.

Notes

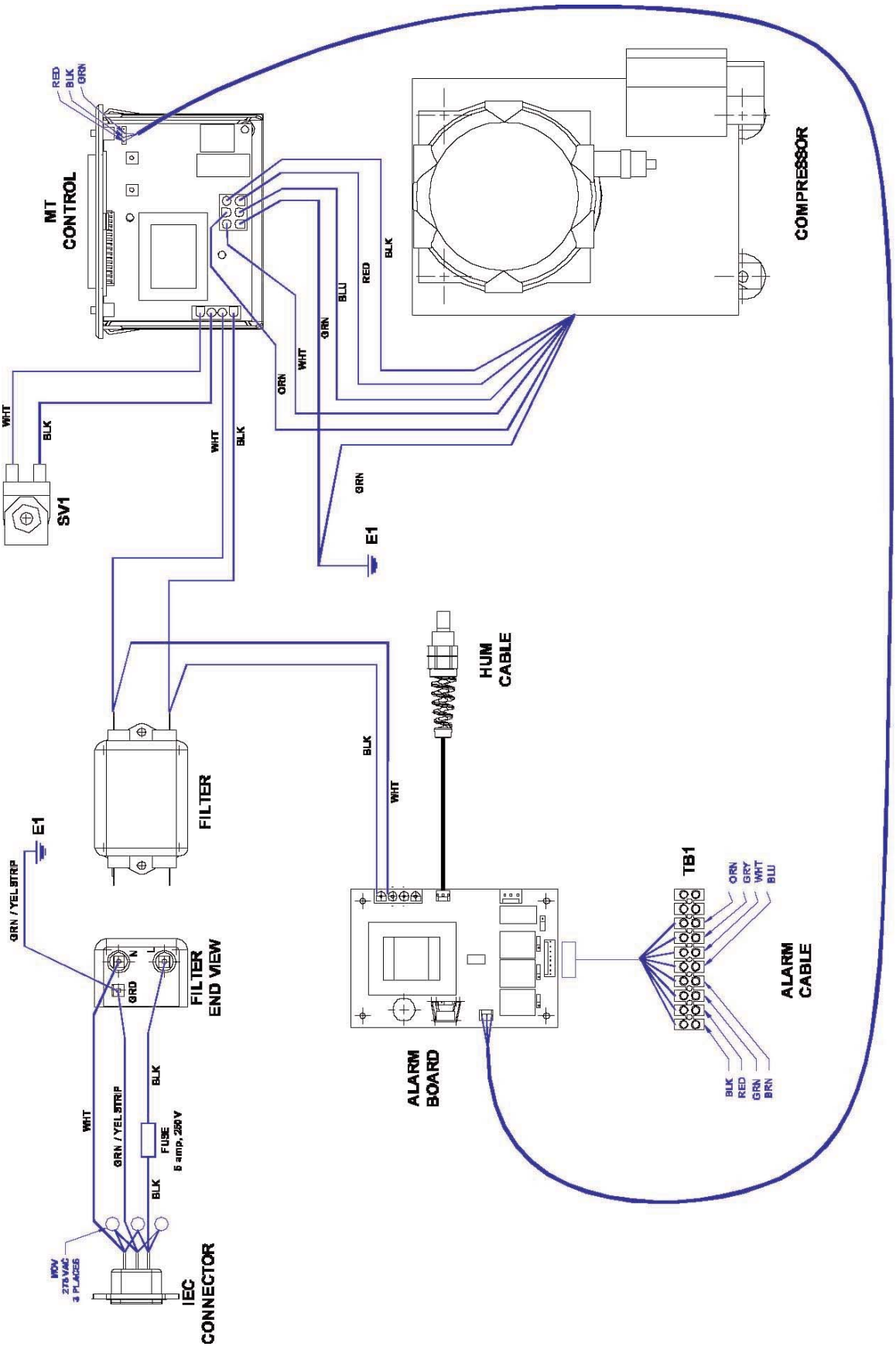
Troubleshooting
Section 4

If you experience difficulty with your dehydrator, use the troubleshooting procedures described below.

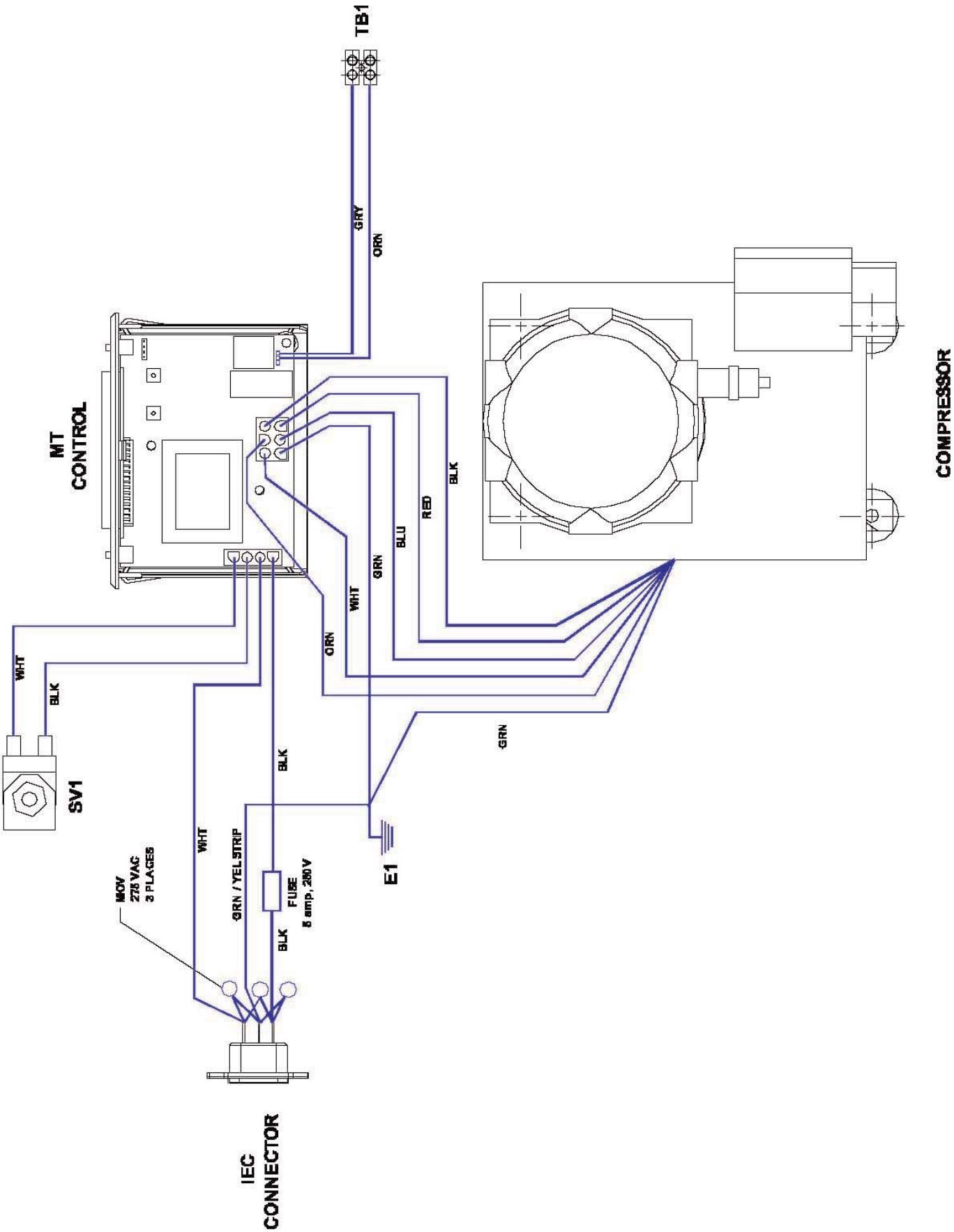
Caution: Electrical troubleshooting requires access to potentially dangerous voltages and should only be performed by a licensed electrician.

Problem/Condition	Solution
Dehydrator display does not light, unit does not run.	If the display light falls to light, make sure the unit is plugged in and power outlet is operating.
	If you still have no light, unplug the unit, remove the unit cover and check for loose connections. Refer to the wiring diagram for proper connections.
	Check to assure that the fuse is OK.
	Check to assure that proper AC voltage is being supplied to the input.
Low-pressure alarm activated.	Turn shut-off valve to the off position and observe pressure gauge. The pressure gauge line should read approximately 5.0 psi and the alarm should clear. If alarm does not clear, remove cover and verify tubing and wiring connections are secure.
	If the pressure does not stay constant after shutting off the valve, apply leak detector to isolate the leak in the dehydrator (exercise care when applying solution not to wet wiring or electronics).
	With dehydrator isolated from transmission line, observe pressure in transmission line. If pressure drops, use a leak detector solution to locate leaks in the transmission line. Repair leaks if possible.
	If the problem persists contact Andrew Customer Service.
Compressor does not turn.	Check the display on the controller. Toggle the ON/OFF switch (left of the display).
	Check input power polarity and voltage per wiring diagram.
Filter bowls show excessive water.	Ensure that the drain line tubing (exiting the bottom of the unit) is not clogged. When the compressor cycles off, air and moisture should flow out of the drain line (into drain pan).

SCHEMATIC WITH ALL OPTIONS (-82315)

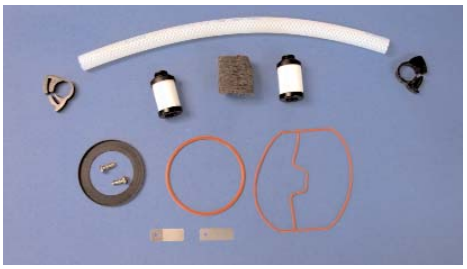


Low Pressure Alarm Harness (-82015)



Replacement Parts
Section 5

The following is a list of the replacement kits for the MT050A Series dehydrators:



Overhaul Kit PMT200A-KIT-OVRHL

Filter Element Replacement Kit PMT200A-KIT-ELMNT

Filter Bowl Assemble Replacement Kit PMT200A-KIT-FLTRS

Filter Bowl Assemble and Dryer Tube Replacement Kit
PMT200A-KIT-DRYER

Solenoid Replacement Kit PMT200A-KIT-SOLND

Customer Service
Section 6

6.0 Introduction

Andrew provides in-warranty and out-of-warranty repairs as well as dehydrator and compressor overhauls from several Repair Centers. Coordination of these services is provided through the nearest Sales Office or Customer Service Center. The Center is also prepared to help you with the following:

Technical Assistance
Troubleshooting
Repairs
Loaner Units
Spare Parts
Installation Materials
System Accessories.

6.1 In Case of Trouble

The first step you should take if trouble develops using a dehydrator is to read the operators manual and follow the trouble isolating procedures given in it.

If the steps in the manual do not identify and remedy the problem, then contact an Andrew Customer Service Center for 24-hour telephone assistance. Record the Model Number (e.g. PMT200A) and Serial Number from the product label, as you will be asked for these when you call. Two main locations are currently available to help:

in North America ---
1-800-255-1479

in Europe ---
+44 1592 782612

any Location (to USA)
(708) 349-3300

If you find it easier to describe your troubles by Fax, then the following numbers are also available:

in North America ---
1-800-349-5444 (Fax only)

in Europe ---
+44 1592 782380 (Fax only)

any Location (to USA)
(708) 349-5410 (Fax only)

6.2 Initial Steps by Andrew

When your call or fax communication is received, the Andrew staff will work with you to pinpoint the possible cause of trouble. If the pressurization equipment is suspect, they will:

* ask for your unit Model Number and Serial Number
* check the warranty status of the unit
* advise the availability of a loaner unit
* provide an estimate of the cost for inspection and repairs, if the unit is out-of-warranty
* fax a Return Goods Authorization Sheet to you.

6.3 Return Goods Instructions

After you have contacted Andrew and received a Return Goods Authorization Number (RGN), you will need to take the following steps to send the faulty unit to a Repair Center:

* make a copy of the Return Goods Authorization Sheet that was faxed to you
* write a brief description of the trouble you are encountering and attach this to the copy of the sheet
* pack the unit (with at least 4-inches of protec tive packaging on all sides)
* enclose the authorization sheet and trouble description within the box
* mark the outside of the box with the RGN
* return the box to the Repair Center address listed on the authorization sheet.

If you have saved the original packaging that came with the unit, use it to return the dehydrator for repair.

If a loaner unit (of the same type) was supplied by Andrew, use the loaner unit box to return the original dehydrator

6.4 Repair Center Process

The Andrew Dehydrator Repair Center will receive your unit and inspect it for any transport damage. The unit will then be analyzed for troubles using the description you have supplied and the specialized experience the Center staff have with dehydrators.

If the unit is in-warranty, repairs are made at no charge and the unit will be returned to you by the same mode of transport as it was received.

If the unit is in-warranty, but no problems are found, the unit will be thoroughly tested before being returned to you. A nominal inspection fee will be charged for this service.

If your unit is out-of-warranty, it will be inspected and you will be advised of the estimated cost of repairs, before the Center proceeds with any work. You may elect to scrap the unit or accept the estimated charge for repairs. If you elect to scrap the unit, you will be billed the nominal inspection fee. If you elect repairs, you will be billed for the inspection fee, parts consumed and labor necessary to do the repair.

6.5 Loaner Units

The Andrew dehydrator Repair Centers stock a limited number of "loaner" dehydrator units of both current and discontinued products. These units, while not new, are still in excellent working order.

Loaners are available on a first-come first-served basis. They are issued in conjunction with the original RGN and are invoiced at a nominal price. You will need to request a second RGN to return the loaner unit. A credit memo is issued by the Repair Center when a loaner is returned

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Andrew Corporation

Small and Medium Capacity Dehydrator and Line Monitor System Three Year Warranty

Seller warrants that any Andrew MT050, MT/XT 300, MR050, PMT200, ODPMT200 and 40525B series number Dehydrator and any Line Monitor System is transferred rightfully and with good title; that it is free from any lawful security interest or other lien or encumbrance unknown to Buyer; and that for a period of thirty-six (36) months from the date of shipment or 3000 hours of actual run time, whichever shall occur first, such equipment will be free from defects in material and workmanship which arise under proper and normal use and service. Buyer's exclusive remedy hereunder is limited to Seller's correction (either at its plant or at such other place as may be agreed upon between Seller and Buyer) of any such defects by repair or replacement (with either a new unit or a factory reconditioned unit) at no cost to the Buyer; provided that the cost of any transportation in connection with the return of the equipment for the purpose of repair or replacement shall be borne by Buyer. The provisions of this warranty shall be applicable with respect to any equipment which Seller repairs or replaces pursuant to it. Expressly excluded from the terms of this warranty are defects caused by: (i) faulty installation, (ii) lack of proper inspection or maintenance, (iii) and usage not in accordance with published ratings, specifications, or instructions. The provisions of this warranty shall be applicable with respect to any equipment Seller repairs or replaces pursuant to it.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, OTHER THAN AS SPECIFICALLY STATED ABOVE. EXPRESSLY EXCLUDED ARE ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PURPOSE. THE FOREGOING SHALL CONSTITUTE ALL OF SELLER'S LIABILITY (EXCEPT AS TO PATENT INFRINGEMENT) WITH RESPECT TO THE EQUIPMENT. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES, INSTALLATION COSTS, LOST REVENUE OR PROFITS, OR ANY OTHER COSTS OF ANY NATURE AS A RESULT OF THE USE OF EQUIPMENT MANUFACTURED BY THE SELLER, WHETHER USED IN ACCORDANCE WITH INSTRUCTIONS OR NOT. UNDER NO CIRCUMSTANCES SHALL SELLER'S LIABILITY TO BUYER EXCEED THE ACTUAL SALES PRICE OF THE EQUIPMENT PROVIDED HEREUNDER. No representative is authorized to assume for Seller any other liability in connection with the equipment.

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