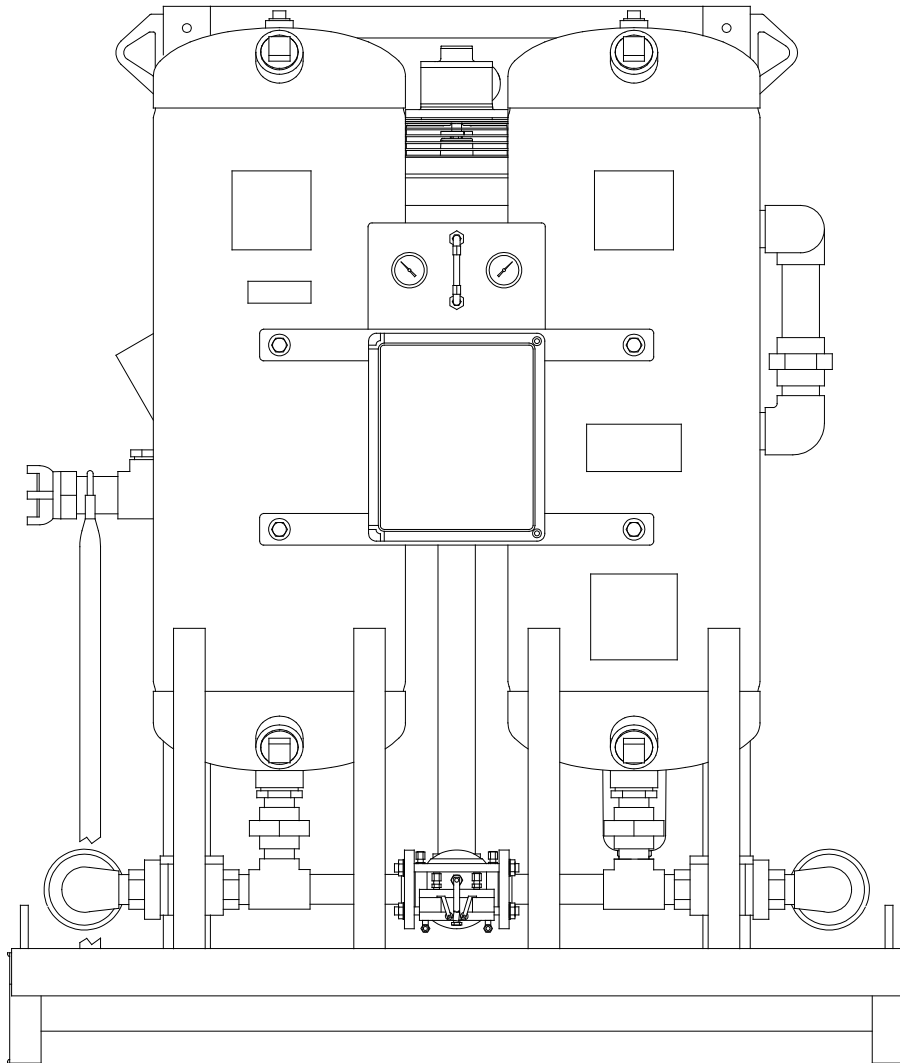


**INSTALLATION, OPERATION & MAINTENANCE MANUAL  
FOR  
PREP-40 PORTABLE COMPRESSED AIR DRYER SYSTEM  
model  
FR-400 (P/N 81-2441)**



## **WARNING**

**READ ALL INFORMATION IN THIS MANUAL BEFORE INSTALLATING OR OPERATING THE DRYER SYSTEM.**

**BEFORE STARTING MAINTENANCE PROCEDURES, TURN OFF THE MAIN POWER TO THE DRYER SYSTEM AND COMPLETELY DEPRESSURIZE THE UNIT TO PREVENT PERSONAL INJURY.**

**DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THIS DRYER SYSTEM WHILE IT IS PRESSURIZED.**

**NEVER OPERATE THIS DRYER SYSTEM ABOVE THE RATED OPERATING CONDITIONS. OPERATION ABOVE SPECIFIED CONDITIONS WILL RESULT IN DECREASED PERFORMANCE, POSSIBLE DAMAGE TO THE UNIT AND/OR PERSONAL INJURY.**

## 1.1 HANDLING INSTRUCTIONS

### WARNING

**DO NOT LIFT THE DRYER SYSTEM BY PIPING OR CONTROL BOX SUPPORT BARS. THESE COMPONENTS ARE NOT DESIGNED TO HOLD THE WEIGHT OF THE DRYER. PERSONAL INJURY AND/OR EQUIPMENT DAMAGE MAY RESULT.**

Lift the dryer system by the lifting lugs on both vessels in combination with the lifting lugs on the pre-cooler supports, or by the base using a fork lift truck.

If the unit is to be lifted by an overhead device, attach the lifting chains or cables to the vessel lifting lugs and the lifting lugs on the pre-cooler supports. Make sure that the chains or cables are clear of all piping and dryer components.

## 1.2 STORAGE INSTRUCTIONS

If the unit is to be placed in storage before it is installed, it should be stored indoors and covered with a tarpaulin to keep it clean. The location should be free from corrosive gasses and extreme humidity, which can cause damage to the unit.

If outside storage is required, the unit **MUST BE** adequately covered to prevent rain or snow from accumulating on the dryer system. The unit must be placed on a paved surface to keep it out of standing water and mud.

## 1.3 EQUIPMENT CHECK

Inspect the dryer system for any damage that may have occurred during shipment. Inspect all fittings, piping connections, fasteners, etc. for loose connections. Also check gauges and lights for cracks or breakage.

### IF DRYER SYSTEM WAS DAMAGED DURING SHIPMENT:

- (1) NOTIFY CARRIER IMMEDIATELY AND FILE A CLAIM.
- (2) CONSULT FACTORY BEFORE OPERATING THE DRYER SYSTEM.

## SAFETY

## SECTION 2

### 2.1 HANDLING

**DO NOT LIFT THE DRYER SYSTEM BY PIPING OR CONTROL BOX SUPPORT BARS. THESE COMPONENTS ARE NOT DESIGNED TO HOLD THE WEIGHT OF THE DRYER SYSTEM. PERSONAL INJURY AND/OR EQUIPMENT DAMAGE MAY RESULT.**

**LIFT THE DRYER SYSTEM BY THE LIFTING LUGS ON BOTH VESSELS IN COMBINATION WITH THE LIFTING LUGS ON THE PRE-COOLER SUPPORTS, OR BY THE BASE USING A FORK LIFT TRUCK.**

**MAKE SURE THAT ALL LIFTING EQUIPMENT IS CAPABLE OF SUPPORTING THE WEIGHT OF THE DRYER SYSTEM.**

### 2.2 INSTALLATION

**THESE ASME CODE VESSELS MUST BE PROTECTED BY PRESSURE RELIEF VALVES. Refer to OSHA 1910.169 Par. b, Sub. Par (3) and ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, UG-125 through UG-136. Also comply with all state and local codes.**

**WHEN INSTALLING AND OPERATING THIS EQUIPMENT, COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.**

**ALWAYS WEAR EYE PROTECTION, GLOVES AND A RESPIRATORY PROTECTIVE DEVICE WHEN HANDLING THE DESICCANT. DESICCANT DUST MAY CAUSE EYE AND SKIN IRRITATION. AVOID BREATHING THE DUST AND PROLONGED CONTACT WITH THE SKIN.**

**FIRST AID IN CASE OF EYE CONTACT WITH DESICCANT DUST; IMMEDIATELY FLUSH THE EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CONSULT A PHYSICIAN.**

### 2.3 OPERATION

**DO NOT OPERATE DRYER SYSTEM IF EITHER VESSEL IS LEAKING. IMMEDIATELY TAKE THE DRYER SYSTEM OUT OF SERVICE.**

**DO NOT OPERATE DRYER SYSTEM IF THE AFTERCOOLER CORE, OR OTHER COMPONENTS ARE LEAKING. IMMEDIATELY TAKE THE DRYER SYSTEM OUT OF SERVICE AND FIX OR REPLACE THE LEAKING COMPONENT.**

**ANY DAMAGE TO THE VESSELS CAN MAKE THEM UNSAFE TO USE. INSPECT OUTSIDE AND INSIDE OF VESSELS REGULARLY FOR CORROSION AND ANY DAMAGE (I.E., DENTS, GOUGES OR BULGES). IF DAMAGED, TAKE OUT OF SERVICE IMMEDIATELY.**

**DURING NORMAL OPERATION, THE INLET PIPING MAY REACH TEMPERATURES OF 150°F. CONTACT WITH THE PIPING MAY RESULT IN SERIOUS PERSONAL INJURY.**

**DO NOT OPERATE THIS DRYER SYSTEM ABOVE THE MAXIMUM RATED WORKING PRESSURE.**

**OPERATING CONDITIONS FOR PROPER PERFORMANCE OF THIS DRYER SYSTEM ARE DIFFERENT THAN MAXIMUM OPERATING CONDITIONS FOR THE VESSELS. BE SURE TO CHECK THE DRYER SYSTEM OPERATING CONDITIONS. SEE SECTION 3.1.**

**USE THIS DRYER SYSTEM FOR COMPRESSED AIR ONLY.**

**AIR FROM THIS DRYER SYSTEM IS NOT SUITABLE FOR BREATHABLE AIR SYSTEMS WITHOUT FURTHER TREATMENT.**

**DO NOT OPERATE THIS DRYER SYSTEM IF EITHER VESSEL HAS BEEN DAMAGED BY FIRE. TAKE OUT OF SERVICE IMMEDIATELY AND NOTIFY YOUR CERTIFYING AUTHORITY.**

**FILTER AND SEPARATOR DISCHARGE MAY CONTAIN COMPRESSOR LUBRICANTS. COMPLY WITH ALL REGULATIONS CONCERNING THEIR DISPOSAL.**

### 2.4 MAINTENANCE

**DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THE DRYER SYSTEM WHILE IT IS PRESSURIZED. TURN OFF MAIN POWER TO THE DRYER SYSTEM AND DEPRESSURIZE THE DRYER SYSTEM COMPLETELY BEFORE STARTING MAINTENANCE PROCEDURES.**

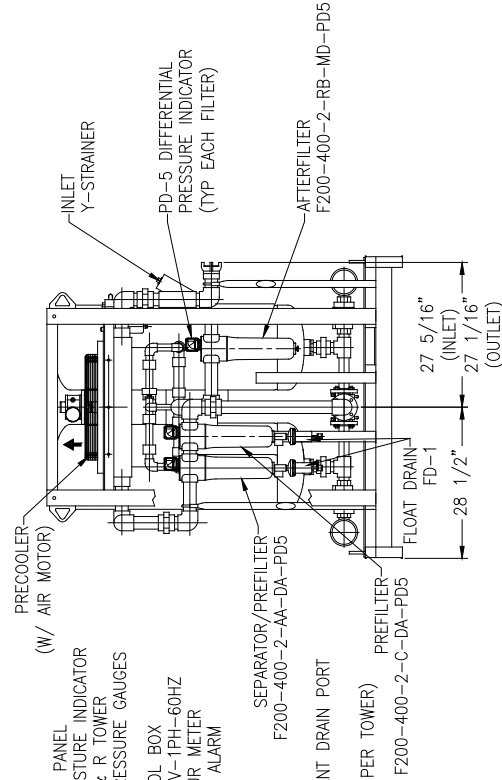
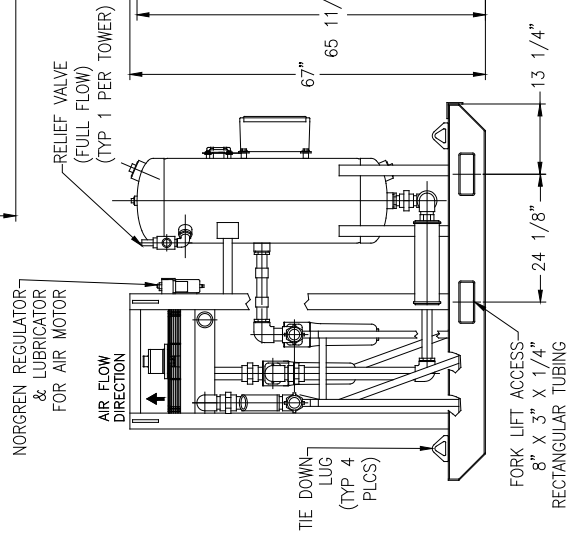
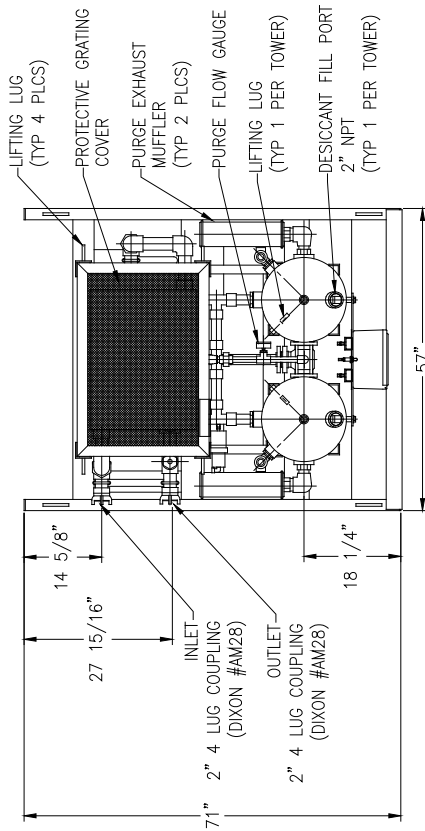
**DO NOT WELD OR GRIND EITHER VESSEL. IT WILL NOT BE SAFE TO OPERATE. (Note: Any uncertified alteration to the vessels VOIDS the ASME Code Certification and the Warranty.)**

**NEVER REMOVE THE FAN GUARD WHILE THE AFTERCOOLER IS OPERATING. CONTACT WITH THE ROTATING FAN BLADES MAY RESULT IN SERIOUS PERSONAL INJURY.**



3.2 DIMENSIONS

- NOTES:
- 1) SYSTEM MAXIMUM WORKING PRESSURE: 175 PSIG (WITH THE EXCEPTION THAT THE CUSTOMER REQUESTED IN/OUT COUPLINGS ARE RATED 150 PSIG).
  - 2) SYSTEM INLET RATING: 400 SCFM @ 100 PSIG, 150°F (PRECOOLER SIZED FOR 15°F APPROACH).
  - 3) DRYER VESSELS BUILT TO ASME CODE PLUS CURRENT ADDENDA.
  - 4) DRYER VESSELS ARE STAMPED "UM" SYMBOL.
  - 5) EXTERIOR PAINT (EXCLUDING PRECOOLER): EPOXY PRIMER AND POLYURETHANE (SAFETY BLUE) FINISH.
  - 6) FLANGE BOLT HOLES STRADDLE CENTERLINES.
  - 7) DESICCANT (1/8" BEAD ACTIVATED ALUMINA): 430 LBS (215 LBS PER TOWER INSTALLED).
  - 8) APPROXIMATE WEIGHT OF UNIT: 1,360 LBS (WITHOUT DESICCANT).
  - 9) CONTROL AIR LINE CONTAINS A CONTROL AIR FILTER AND A CONTROL REGULATOR (NOT SHOWN). CONTROL AIR TUBING TO BE NYLON.



## 4.1 LOCATION

### WARNING

**DO NOT INSTALL THIS DRYER SYSTEM IN AN ENVIRONMENT OF CORROSIVE CHEMICALS, EXPLOSIVE GASSES, POISONOUS GASSES, OR SATURATED STEAM HEAT.**

Locate dryer system in a protected, well vented area where ambient temperatures are between 40°F and 120°F. Allow sufficient clearance over and around the dryer system for access to desiccant fill and drain ports and controls. **Refer to SECTION 3.2 for dryer dimensions.**

If this dryer system must be installed where ambient temperatures are below 40°F, insulation and heat tracing must be properly installed on the inlet piping, separator, prefilter, purge exhaust line and the desiccant towers to prevent freezing of the equipment.

Position the dryer system in the upright position on a solid, level, vibration free surface capable of supporting the dryer system's weight. **Refer to SECTION 3.1 for dryer system specifications.**

The dryer system should not be located in extremely dirty areas where airborne contaminants can accumulate on the dryer system. If this cannot be prevented, the dryer system should be cleaned periodically. An accumulation of dirt on the pre-cooler will greatly reduce its efficiency. Accumulated dirt may also cause the inlet transfer valve to fail.

## 4.2 DESICCANT INSTALLATION

The desiccant was factory installed in both towers before the dryer shipped.

## 4.3 ELECTRICAL CONNECTIONS

### WARNING

**SERIOUS PERSONAL INJURY AND DAMAGE TO THE DRYER SYSTEM WILL OCCUR IF THE DRYER SYSTEM IS CONNECTED TO A POWER SOURCE OTHER THAN THE VOLTAGE LISTED ON THE DATA TAG.**

Connect the dryer system power cord to a 115V/1PH/60Hz power source capable of supplying a minimum of 2 AMPS.

## 4.4 INSTALLING THE PURGE MUFFLERS

Purge mufflers were shipped separately. They should **NOT** be installed until the dryer system has been operated for several hours. From desiccant installation, some dust may be present in the desiccant towers. Operating the dryer system with the mufflers installed immediately after the towers have been filled with the desiccant or during initial start up may cause the mufflers to clog. See **SECTION 5.6** for purge muffler installation.

## 4.5 FILL LUBRICATOR WITH OIL

The lubricator is located in the air line between the regulator and the pre-cooler air motor. Fill the lubricator with Pneumatic Lubricating Oil SAE10 AD220 (Van Air p/n 26-7032 quart).

## 4.6 CONNECT DRAIN LINES

Connect the automatic drains for the separator/prefilter and the prefilter to an appropriate collection container. Filter and separator/prefilter discharge may contain compressor lubricants. Comply with all regulations concerning their disposal.

## 4.7 CONNECTING THE INLET AND OUTLET

The inlet and outlet of this dryer system are equipped with 2" 4-lug couplings. Connect the inlet and outlet air hoses to the dryer system. **Remember to use SAFETY CLIPS.**

5.1 START UP

**WARNING**

**BEFORE STARTING THIS DRYER SYSTEM, FOLLOW THE INSTALLATION INSTRUCTIONS AND PROCEDURES COMPLETELY. SERIOUS PERSONAL INJURY CAN RESULT IF INSTRUCTIONS ARE NOT CAREFULLY AND COMPLETELY FOLLOWED.**

**DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THIS DRYER SYSTEM WHILE IT IS PRESSURIZED.**

Make sure that the Power switch is in the **OFF** position.

If the dryer system is being started up for the first time or after the desiccant has been changed, the purge mufflers must be removed. See **SECTION 2.2** for safety precautions concerning the desiccant dust.

**WARNING**

**WHEN OPERATING THIS DRYER SYSTEM WITHOUT THE MUFFLERS INSTALLED, USE HEARING PROTECTION.**

Pressurize the air system.

Place the Power switch in the **ON** position. One tower will already be pressurized. The other tower will depressurize. The purge valve on the tower that is not pressurized will be open, air should be exhausting from the muffler.

The dryer system is equipped with a purge metering valve. The setting should be checked per **SECTION 5.2** before placing the dryer system on stream.

Set the control pressure regulator per **SECTION 5.3**.

Set the lubricator and regulator for the pre-cooler air motor per **SECTION 5.4**.

Condition the desiccant bed per **SECTION 5.5** before placing the dryer system on-stream.

Install the purge mufflers per **SECTION 5.6**.

5.2 ADJUSTING THE PURGE FLOW

**IMPORTANT**

**NEVER OPERATE THE DRYER SYSTEM WITH THE PURGE METERING VALVE CLOSED. IF THE VALVE IS CLOSED, THE TOWERS WILL NOT REPRESSURIZE AND SWITCHING FAILURE WILL OCCUR.**

**DO NOT ADJUST THE PURGE METERING VALVE ABOVE OR BELOW THE RECOMMENDED SETTING FOR THE OPERATING CONDITIONS OF THIS INSTALLATION. IMPROPER SETTING MAY CAUSE POOR DRYER SYSTEM PERFORMANCE AND/OR EXCESSIVE USE OF PROCESS AIR.**

The Prep-40 dryer system is equipped with a purge metering valve and gauge. Reference **SECTION 3.2** for Location. The gauge indicates the back pressure on the purge flow orifice, which is in direct correlation to the purge flow in SCFM.

The purge flow can be adjusted for the operating conditions.

This dryer system was shipped with the purge flow set for the rated inlet flow at 100 PSIG. Reference **SECTION 3.1** for rated flow. This setting should be correct for most installations. Before placing the dryer system on stream, check the purge metering valve setting.

**FIGURE 5B** shows the purge flow, in SCFM, and the pressure setting required for each model. This flow is required to properly regenerate the desiccant beds.

**FIGURE 5B REQUIRED PURGE FLOW**

| DRYER MODEL | PURGE FLOW | PURGE FLOW GAUGE SETTING |
|-------------|------------|--------------------------|
| FR-400      | 72.0 SCFM  | 39 PSIG                  |

5.3 SETTING THE CONTROL PRESSURE REGULATOR

The control pressure regulator is located in line with the control filter and it is used to protect the pneumatic control components. This regulator should be set at 115 PSIG.

**CAUTION**

**DO NOT OPERATE THIS DRYER SYSTEM WITH THE CONTROL AIR PRESSURE REGULATOR ABOVE 115 PSIG TO PREVENT DAMAGE TO THE PNEUMATIC CONTROLS.**

5.4 ADJUST THE REGULATOR & LUBRICATOR

The regulator and lubricator for the pre-cooler air motor must be properly set to ensure trouble-free air motor operation.

The regulator is used to set the speed of the pre-cooler fan. The regulator is factory set using a tachometer and a clean pre-cooler core. See **FIGURE 5C**. As the core becomes dirty, a higher regulator pressure setting may be required to maintain the fan speed.

**FIGURE 5C FACTORY REGULATOR SETTING**

| DRYER MODEL | SETTING (PSIG) | AIR USAGE (SCFM) | FAN SPEED (RPM) |
|-------------|----------------|------------------|-----------------|
| FR-400      | 22             | 15               | 1725            |

Set the lubricator per **FIGURE 5D**.

**FIGURE 5D LUBRICATOR SETTING**

| DRYER MODEL | DROPS PER MINUTE |
|-------------|------------------|
| FR-400      | 1                |

5.5 CONDITIONING THE DESICCANT BED

To condition the desiccant bed, the dryer system is operated without any outlet flow while the towers regenerate with purge air.

Observe the dryer system for several cycles to make sure that it is operating properly.

At initial start up or after extended shutdowns (over one month), the dryer system may take 24 to 48 hours of continuous operation for the bed to be conditioned. Moisture that has accumulated on the desiccant bed should be removed before the dryer system is placed on stream.

Once the moisture indicator on the dryer system turns blue, the desiccant bed is ready. The Prep-40 dryer is now ready for operation.

## 5.6 INSTALLING THE PURGE MUFFLERS

To reduce the sound level during purge and tower depressurization, this dryer system was supplied with mufflers for installation on the purge exhaust valves.

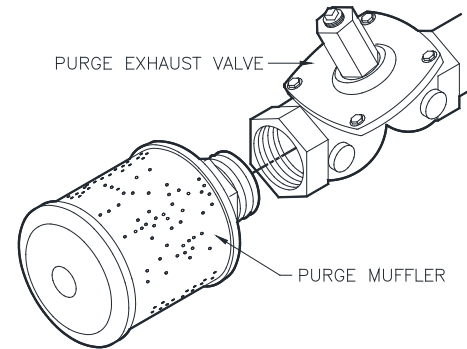
Mufflers were shipped separately. They should **NOT** be installed until the dryer system has been operated for several hours. From desiccant installation, some dust may be present in the desiccant towers. Operating the dryer system with the mufflers installed immediately after the towers have been filled with the desiccant or during initial start up may cause the mufflers to clog.

Operate the until NO desiccant dust is visible at the purge valves. Then the mufflers can be installed.

### IMPORTANT

**The dryer system must be operated for several hours without the mufflers after the towers have been filled with desiccant. This will prevent the mufflers from becoming clogged.**

FIGURE 5A PURGE MUFFLER INSTALLATION



## 6.1 DESCRIPTION OF OPERATION

The Prep-40 is a portable skid mounted system consisting of a strainer, pre-cooler, separator, prefilter, heatless regenerative dryer and an afterfilter. Wet warm air enters the pre-cooler where it is cooled to a temperature approaching ambient. Water is condensed out during this cooling process. The saturated air and the liquid water proceed to the inlet of the separator where the liquid water is removed. Then the saturated air enters the coalescing filter where additional oil and liquid water is removed. Then the air enters the heatless twin tower dryer where it moves upward through the desiccant bed. The moisture is adsorbed onto the surface of the desiccant. Dry air exits the heatless dryer and passes through the general purpose particulate after-filter where residual particulate is removed.

This package dryer will take saturated air at 100 psig @ 150°F and reduce the moisture content to -40°F pressure dew point.

## 6.2 HEATLESS DRYER PRINCIPLE OF OPERATION

The Heatless Regenerative Air Dryer utilizes the pressure swing principle of operation. The desiccant bed in one tower dries the air stream while the desiccant bed in the other tower is regenerated.

A purge of dry air is used for tower regeneration. It is taken from the outlet of the dryer.

The dryer is equipped with a purge metering valve to allow the correct amount of dry air to flow into the regenerating tower. The heat created during adsorption of moisture in the drying tower is retained in the desiccant bed and increases the moisture removal capacity of the purge air.

The timing cycle of the dryer is controlled by two 3-way pilot valves.

A patented shuttle valve system is used to repressurize, changeover, and depressurize the towers. The inlet transfer valve is controlled by the pilot valves.

To achieve maximum performance from this dryer, it should be operated continuously. Operating this dryer for single shift periods may result in varied outlet dew point performance.

The dryer operation consists of four stages; REPRESSURIZATION, CHANGEOVER/DEPRESSURIZATION, DRYING and REGENERATION.

### 6.2-1 REPRESSURIZATION STAGE

Repressurization occurs in the off-stream (regenerating) tower. Repressurization must occur before tower changeover to reduce shock to the desiccant and the possibility of downstream pressure spikes.

Pilot valve SV1 or SV2 de-energizes causing the purge valve on the off-stream (regenerated) tower to close. The purge air, which was vented to atmosphere earlier in the cycle, is now used to repressurize the off-stream tower.

### 6.2-2 CHANGEOVER/DEPRESSURIZATION STAGE

Tower changeover occurs after the off-stream (regenerated) tower is pressurized. The SmartRelay signals SV1 or SV2 to open causing pilot air to be supplied to the opposite side of the inlet transfer valve and cause exhaust valve to open on regenerative tower. The inlet transfer valve shuttle will move to the side that has pilot pressure placing the regenerated tower on-stream. The tower that was on line and drying the process air is now off-stream.

When the inlet transfer valve changes position, the position indicator will move.

### 6.2-3 DRYING AND REGENERATION STAGE

One tower is on-stream (pressurized) drying process air. The process air passes through the desiccant bed, which adsorbs moisture from the air.

The regeneration stage of the off-stream tower occurs at the same time as the drying stage in the on-stream tower. During the regeneration stage, a percentage of dry air is directed through the desiccant bed of the offstream tower. The purge air is vented through the purge valve to the atmosphere.

If pilot valve SV2 is energized, the LEFT tower is drying and if pilot valve SV1 is energized, the RIGHT tower is drying.



**6.3 MOISTURE INDICATOR**

The moisture indicator is in the center of the panel. The moisture indicator is a clear plastic tube filled with moisture sensing crystals. A sample of outlet air is directed through the indicator.

The crystals will change colors from **PINK (indicating wet air)** to **BLUE (indicating dry air)** as the dew point of the air changes from +20°F to -40°F.

**6.4 DRYER CONTROLS**

The control is housed in a NEMA 4X enclosure and it has the following features:

- Power switch
- Power On light
- Fail to Switch light
- Alarm Reset pushbutton
- Hour Meter

See **Figure 6B** for control box door.

**6.4-1 SMART RELAY:**

The dryer cycle is controlled by a SmartRelay, two solenoid valves and two pressure switches. The dryer timing chart is shown in **FIGURE 6C**. The SmartRelay has a battery back-up that will hold the program in memory safely for 2 years.

**6.4-2 SWITCHING FAILURE:**

When there is a switching failure (failure of control solenoid valves SV1 & SV2; failure of exhaust valve to open; or clogging of exhaust muffler), the Fail to Switch LED will be lit. This will energize the Alarm Contacts shown in **FIGURE 10D**. The contacts can be wired for remote annunciation. To reset the Switching Failure Alarm press the Alarm Reset Pushbutton on the front of the control box. If the condition causing the alarm is not corrected, the alarm will re-activate in 90 seconds.

**6.4-3 HOUR METER:**

The Hour Meter is located on the front of the control box. It is used to log the total number of hours that the Prep-40 dryer system has been in operation.

**FIGURE 6A PNEUMATIC SCHEMATIC**

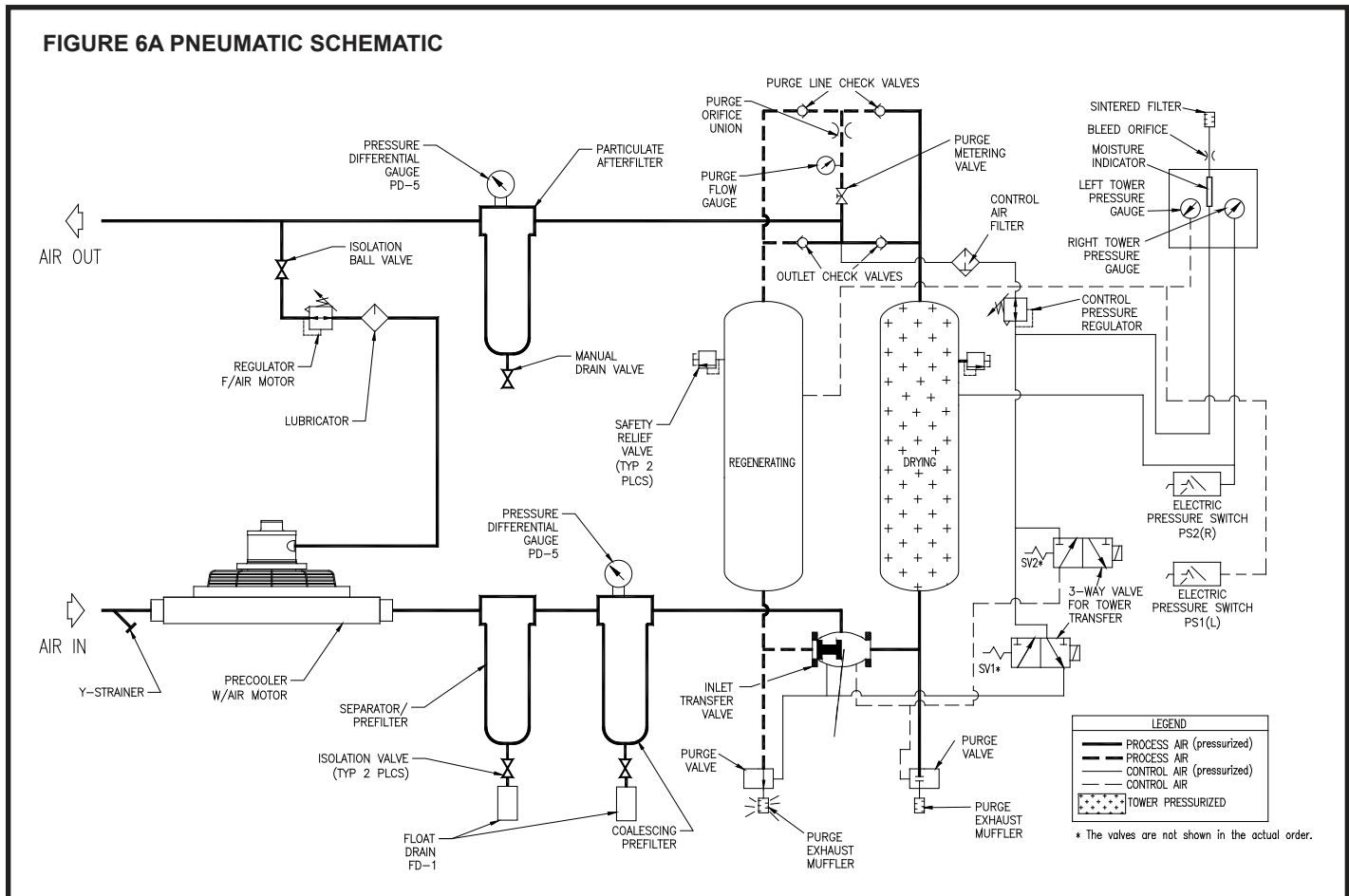




FIGURE 6B CONTROL BOX DOOR

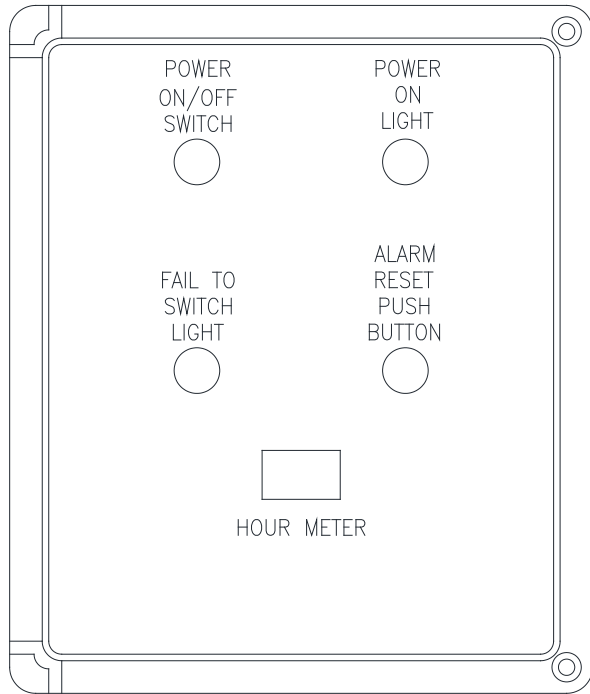
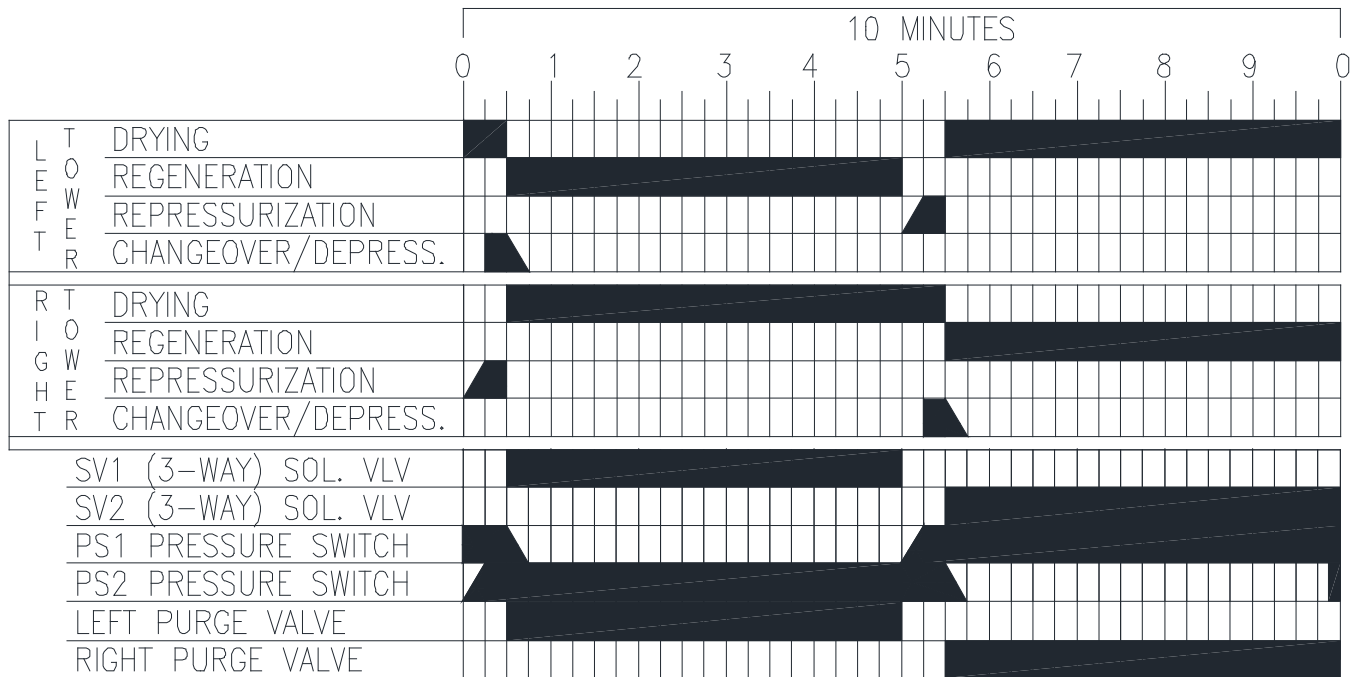


FIGURE 6C DRYER TIMING CHART



■ = ON

Shut off the air supply to the Prep-40 dryer system. Turn the dryer system off by placing the Power Switch to the OFF position. Manually drain the separator/prefilter by lifting the manual override collar, on the separator/prefilter automatic drain, until no more fluid is discharged. Manually drain the prefilter by lifting the manual override collar, on the prefilter automatic drain, until no more fluid is discharged. Open the ball valve on the afterfilter and completely depressurize the dryer system.

Disconnect the power supply to the dryer system.

If maintenance is to be performed on the dryer system, make sure the dryer system is completely depressurized. Tower pressure gauges must read 0 PSIG before removing any item on the dryer system.

### WARNING

**DO NOT ATTEMPT TO REMOVE OR REPAIR ANY PART OF THE SYSTEM UNTIL IT IS COMPLETELY DEPRESSURIZED. SERIOUS PERSONAL INJURY MAY RESULT IF THIS SAFETY RULE IS NOT FOLLOWED.**

**INSPECT VESSEL, INSIDE AND OUT, REGULARLY FOR BULGES, CORROSION, DENTS, GOUGES OR LEAKS. IF DAMAGED, REMOVE FROM SERVICE IMMEDIATELY AND NOTIFY YOUR CERTIFYING AUTHORITY.**

### 8.1 REMOVE THE PREP-40 FROM SERVICE

Shutdown the dryer system per **SECTION 7**.

Close the ball valve on the afterfilter.

The pre-cooler air motor needs to be flushed to remove excessive dirt, foreign particles, moisture and/or oil that accumulate in the air motor during normal operation. Flushing helps to maintain proper motor performance and extend service life.

Perform Flushing procedure, per **SECTION 8.2**, when Prep-40 is to be idle for more than 5 days, or if it is to be placed in storage.

Use only Van Air Flushing Solvent (p/n 26-7157). **DO NOT use kerosene or ANY other combustible solvents to flush the air motor.**

### 8.2 FLUSHING PROCEDURE

Remove the pipe plug in the air supply line near the air motor.

Remove exhaust muffler from air motor.

Spray flushing solvent (Van Air p/n 26-7157) into air motor through tee for 5 to 10 seconds.

Rotate motor shaft/fan, by hand, for one minute in each direction.

Reinstall the plug in the tee and cover the exhaust port with a cloth.

**You must wear eye protection for this step.**

Restart the motor at a low pressure (approximately 10 PSIG) and run it until there is no trace of solvent in the exhaust air.

Listen for changes in the sound of the motor. If the motor sounds smooth, the Prep-40 is ready for storage. If the motor does not sound like it is running smooth, the motor will need to be serviced.

### 8.3 CLEAN THE EXHAUST MUFFLER

Disassemble the exhaust muffler that was removed in **STEP 8.2**. Clean the felt and reassemble the exhaust muffler.

Install the exhaust muffler on the air motor.

### 8.4 SET THE REGULATOR FOR THE AIR MOTOR

Set the regulator for the air motor per **FIGURE 5C**.

### 8.5 PREPARATION FOR STORAGE

Open the ball valve on the afterfilter to completely depressurize the Prep-40 system.

If long term storage is required, cover the inlet and outlet air connections to prevent the accumulation of dirt and debris on the piping.

### 8.6 STORAGE

Store the Prep-40 in location that is free from extreme humidity and corrosive gasses, which can cause damage to the unit.

**9.1 DAILY INSPECTION**

- The following procedures should be performed daily:
- Check the dryer system operating conditions, ambient temperature and inlet pressure.
  - Monitor the dryer system for one complete cycle. Make sure it is operating properly.
  - Check the purge mufflers. Purge air should be exhausting from one of the valves. If oil is present, the dryer and air system may be contaminated with lubricants.
  - Inspect separator/prefilter and prefilter drains for proper draining.
  - Check the pressure differential indicator on prefilter and afterfilter. If the differential pressure is unacceptable, replace the elements.
  - Visually check the dryer system and piping for damage.
  - Visually check the dryer system moisture indicator (blue dry or pink wet)

**9.2 SCHEDULED MAINTENANCE**

**12 MONTHS**

- Fill lubricator with oil
- Replace purge muffler elements
- Replace the control air filter element
- Replace the separator/prefilter, prefilter, and afterfilter elements
- Clean the exterior of the pre-cooler

**24-60 MONTHS**

- The desiccant in the towers should be replaced every two to five years. The life of the desiccant will vary depending on the inlet air conditions. Systems with excessive contaminants and/or inadequate filtration will decrease the life span of the desiccant drastically. Once the desiccant is contaminated with lubricants, it must be replaced.
- Periodically the pre-cooler core should be cleaned internally if the process air contains excessive amounts of lubricating fluids.

**9.3 DESICCANT REPLACEMENT**

**WARNING**

**DO NOT ATTEMPT TO REMOVE PLUGS UNTIL ALL AIR PRESSURE IS OUT OF THE VESSEL. CHECK ALL TOWER PRESSURE GAUGES, MAKING SURE THAT THEY ARE AT 0 PSIG AND INCOMING PRESSURE HAS BEEN TURNED OFF.**

**ALWAYS WEAR EYE PROTECTION AND GLOVES WHEN HANDLING THE DESICCANT. DESICCANT DUST MAY CAUSE EYE AND SKIN IRRITATION. AVOID BREATHING THE DUST AND PROLONGED CONTACT WITH THE SKIN.**

**FIRST AID IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CONSULT A PHYSICIAN.**

Take dryer system off stream following the **SHUTDOWN PROCEDURES IN SECTION 7.**

Remove the plugs from the desiccant drain and fill ports; drain old desiccant from each tower.

Remove any oil, dirt, or scale from the towers and inlet piping. Do NOT weld, grind or sandblast the vessels as this voids the ASME Certification. The vessels may be steam cleaned internally and externally to remove dirt and oil.

**CAUTION**

**Make sure that the towers are clean to prevent contamination of new desiccant.**

Replace plugs securely on desiccant drain ports. Apply pipe thread sealant as necessary.

**Make sure that the desiccant drain plugs are installed before attempting to fill the towers.** Load desiccant through the desiccant fill ports. **REFER TO SECTION 3.1 FOR PROPER DESICCANT AMOUNTS.**

Reinstall the fill plugs. Apply pipe thread sealant as necessary.

Follow **START UP PROCEDURES IN SECTION 5.1** to start up and place dryer in operation.

**9.4 CONTROL AIR FILTER ELEMENT REPLACEMENT**

Shutdown the dryer per Shut-Down Procedures **SECTION 7.**

Turn manual valve (petcock) on bottom of control air filter to ensure that the dryer is completely depressurized.

**WARNING**

**DO NOT REMOVE THE FILTER BOWL FROM HEAD UNTIL HOUSING IS COMPLETELY DEPRESSURIZED.**

After all pressure is out of the dryer, grasp the filter bowl firmly and push upward while turning it counter-clockwise (as viewed from the bottom) to remove it from the filter head. If preferred strap wrenches can be used to remove bowl. Make sure that the bowl does not drop.

Remove the used element from element adaptor in filter head by pulling down. Discard used element properly.

Remove new element from the shipping package. Check to make sure that the o-ring is properly positioned in endcap and has been lightly greased.

Grasp clean element by bottom endcap and push element onto element adapter firmly, but do not force beyond normal stop.

Check o-ring in filter head. Replace if worn or damaged.

Clean and lubricate threads on bowl with light grease. This will facilitate removal of bowl at next servicing.

Carefully raise filter bowl over element and screw into head, then tighten. **DO NOT OVERTIGHTEN.**

Close manual drain valve (petcock).

Following the start up procedures in **SECTION 5.1** for the dryer, place the dryer on stream.

**9.5 CLEANING THE EXTERIOR OF THE PRE-COOLER**

The pre-cooler core should be cleaned regularly. Accumulation of dirt or other contaminants such as oils will greatly reduce the efficiency of the pre-cooler.

Normal accumulation of dirt can be removed by using compressed air to blow off the core. If the core becomes contaminated with oil-laden particles, it will need to be steam cleaned. **Use extreme care when cleaning the core as the aluminum fins can be easily damaged.**

### 9.6 CLEANING THE INTERIOR OF THE PRE-COOLER

The inside of the pre-cooler core should be cleaned periodically if the process air has an excessive amount of lubricating fluids. Excess lubricating fluids can build up on the inside of the core and greatly reduce the efficiency of the pre-cooler.

Shut down the dryer system per **SECTION 7** and completely depressurize the dryer system. Disconnect the core from the air system.

The interior of the core can be cleaned by circulating a mild cleaning solution through the core to remove the deposits. In most cases, a mild alkaline solution such as OAKITE or equal is satisfactory. For extreme conditions, it may be necessary to use a weak solution of INHIBITED hydrochloric acid. Circulate the solution through the core until it is clean. Once the core is clean, thoroughly rinse the core to remove all traces of the cleaning solution before re-connecting it to the air system.

### 9.7 REPLACING SEPARATOR/PREFILTER, PREFILTER, AND AFTERFILTER ELEMENTS

Shutdown and depressurize dryer system per **SECTION 7**.

Disconnect drain line as required.

Remove filter bowl by turning it counterclockwise (as viewed from below). Pull element from locator. Set bowl aside for use later.

Remove new element from packaging and make sure o-ring is in place on element end cap. See **SECTION 11.3** for replacement element part number.

Install new element by pushing onto element locator on filter head.

Inspect the head to bowl o-ring for nicks and/or cracks. If nicks or cracks are present, replace the o-ring. Re-install the o-ring in the filter head. Check to make sure that the o-ring in the head is in the proper position. Thread filter bowl into filter head and tighten with strap wrench. Do not over tighten. Overtightening could damage filter bowl or make it difficult to remove.

**SEPARATOR/PREFILTER** - Make sure the ball valve on bottom of separator/prefilter is open, so the auto drain will function. Reconnect drain line to the auto drain.

**PREFILTER** - Make sure the ball valve on bottom of prefilter is open, so the auto drain will function. Reconnect drain line to the auto drain.

**AFTERFILTER** - Make sure the ball valve on the bottom of the filter is closed.

Place dryer system on stream per **SECTION 5.1**.

### 9.8 CLEANING THE Y-STRAINER

Shutdown and depressurize dryer system per **SECTION 7**.

Remove the air supply hose from the dryer system inlet connection.

Remove the cap/plug from the strainer.

Clean the screen and Y-strainer body. Take care to remove all debris that may have fallen out of the Y-strainer into the dryer system piping.

Reinstall the screen and the cap/plug. Replace the gasket if necessary. See **SECTION 11.3** for part number.

Place the dryer system on-stream per **SECTION 5.1**.

## 10.1 TROUBLESHOOTING

The following check list should be used as a guideline for troubleshooting problems. Each of the topics will reference other sections in this manual for further information.

### IS THE POWER ON?

Check the main power source. Make sure the Power switch is in the **ON** position.

### IS THE SYSTEM PRESSURIZED?

The dryer system is designed to operate at 60 to 175 psig. Check to make sure the air supply was connected to the dryer system inlet.

Check the Differential Pressure indicator on the prefilter. If the needle is in the RED zone, replace the element.

### IS THE DRYER CYCLING?

#### • IS THE FAILURE TO SWITCH ALARM ACTIVATED?

If the dryer system is not cycling the FAILURE TO SWITCH ALARM should be activated. The dryer system should be checked to determine the cause of switching failure.

#### • IS THERE CONTROL AIR PRESSURE, 60 PSIG MINIMUM?

Make sure that the dryer system inlet pressure is above 60 PSIG. Replace control air filter element. Reference **SECTION 9.4** for element replacement instructions.

#### • IS THE Y-STRAINER PLUGGED?

If the Y-strainer is clogged, there may not be enough control air pressure to operate the dryer system. Disassemble and clean the Y-strainer per **SECTION 9.8**.

#### • DO THE SEPARATOR/PREFILTER, PREFILTER, &

##### AFTERFILTER ELEMENTS NEED CHANGED?

Check the differential pressure gauge on the prefilter and afterfilter. If the needle on either gauge is in the red zone, replace the element in that filter. Reference **SECTION 9.7** for details.

#### • ARE THE PILOT VALVES FAULTY? (SV1 & SV2)

Reference **SECTION 10.3** for procedures to check the operation of the 3-way valves. Replace any faulty 3-way valves.

#### • IS THE INLET VALVE FAULTY?

Reference **SECTION 10.4** for procedures to check the operation of the inlet transfer valve.

Rebuild or replace the inlet valve as necessary. Reference **SECTION 11.3** for valve repair kit details.

#### • IS A PURGE EXHAUST VALVE FAULTY?

Reference **SECTION 10.6** for procedures to check the operation of the purge exhaust valves.

Rebuild or replace the faulty purge exhaust valve. Reference **SECTION 11.3** for valve repair kit details.

#### • IS AN OUTLET CHECK VALVE FAULTY?

Reference **SECTION 10.7** for procedures to check the operation of the outlet check valves.

If a valve is faulty, replace it.

#### • IS THE PURGE METERING VALVE SET PROPERLY?

Reference **SECTION 5.2** for purge metering valve settings and procedures.

If the purge metering valve requires adjustment, follow the procedures in **SECTION 5.2**.

#### • IS THE SMARTRELAY FUNCTIONING?

See **SECTION 10.2** for explanation of Smart Relay operation.

### IS THE VISIBLE MOISTURE INDICATOR BLUE?

Reference **SECTION 6.3** for an explanation of operation for the moisture indicator.

#### • IS THE BLEED ORIFICE FITTING OR SINTERED MUFFLER ON THE MOISTURE INDICATOR CLOGGED?

Inspect the bleed orifice fitting and the sintered filter on the back of the moisture indicator. They can be cleaned or replaced.

### IS THE DEW POINT ACCEPTABLE?

#### • ARE THE INLET CONDITIONS WITHIN THE SPECIFICATIONS?

Reference **SECTION 3.1** for the inlet conditions of the dryer system.

Correct the inlet conditions if necessary. Excessive inlet flow will greatly reduce the performance of the dryer system.

#### • IS THE PURGE METERING VALVE SET PROPERLY? Reference

**SECTION 5.2** for purge metering valve settings and procedures.

Adjust purge metering valve as required.

#### • WAS THE DESICCANT INSTALLED?

Is there desiccant in the towers. Reference **SECTION 9.3** for desiccant replacement procedures.

#### • IS THE DESICCANT CONTAMINATED WITH LUBRICANTS?

Check the condition of the desiccant bed. If the bed is contaminated with lubricants, replace the desiccant following the procedures in **SECTION 9.3**.

#### • IS THE DESICCANT CONTAMINATED WITH MOISTURE?

If the dryer system was operated under excessive inlet conditions, the desiccant bed may be saturated with liquid moisture. Check upstream equipment such as aftercoolers. Check the actual inlet conditions, correct them and condition the bed following the procedures in **SECTION 5.5**.

#### • IS THE SEPARATOR/PREFILTER DRAINING PROPERLY?

Manually override the drain on the separator/prefilter to ensure it is not flooded.

#### • IS THE PREFILTER DRAINING PROPERLY?

Manually override the drain on the prefilter to ensure it is not flooded.

#### • IS THE FAN MOTOR ON THE PRECOOLER OPERATING?

Check the regulator setting for the air supply to the motor. See **SECTION 5.4** for details. Check the air motor and repair or replace as necessary.

#### • ARE THE PURGE MUFFLERS CLOGGED?

Check the tower pressure gauge during the regeneration cycle. If the tower pressure is above 5 PSIG, replace the purge mufflers. See **SECTION 11.3** for part number.

#### • IS THE PRECOOLER DIRTY?

Inspect the outside of the core for dirt and /or oil deposits. If the core is dirty, clean it per **SECTION 9.5**. If the outside of the core is clean, the inside may be coated with oil. If the inside is coated with oil the precooler will have to be cleaned per **SECTION 9.6**.

**10-2 CHECKING THE SMARTRELAY**

The control system consists of three different control systems:

1. The SmartRelay
2. Input devices (120VAC components)
  - a. Pressure switches
  - b. Alarm Reset push-button
  - d. Power switch
3. Output components
  - a. Pilot valves
  - b. Lights
  - c. General alarm contact

The SmartRelay controls the cycling of the dryer system. The program logic is stored on an electrically erasable non-volatile EE-PROM. Loss of power will not cause loss of the program.

If the LCD display on the SmartRelay is not lit, the SmartRelay is not operating. If this occurs, check fuse 1FU and replace as needed. If there is power to the SmartRelay and it still does not function, consult factory.

See **SECTION 10.2A** and **10.2B** for procedures to verify the operation of the input and output devices.

**FIGURE 10B INPUT AND OUTPUT LIST**

| INPUT | DEVICES | OUTPUT | DEVICES       |
|-------|---------|--------|---------------|
| I1    | PS1     | Q1     | SV1           |
| I2    | PS2     | Q2     | SV2           |
| I3    | ARPB    | Q3     | PL2           |
| I4    | SPARE   | Q4     | ALARM CONTACT |
| I5    | SPARE   |        |               |
| I6    | SPARE   |        |               |
| I7    | SPARE   |        |               |
| I8    | SPARE   |        |               |

**NOTE:**

The general alarm contact is a normally open dry contact which is wired to terminals #16 and #17.

**10.2B TESTING THE OUTPUT DEVICES**

The SmartRelay's outputs are 120VAC. See **FIGURE 10B** for a list of the dryer system output devices.

To check output devices SV1 and SV2, follow the procedure in **SECTION 10.3**.

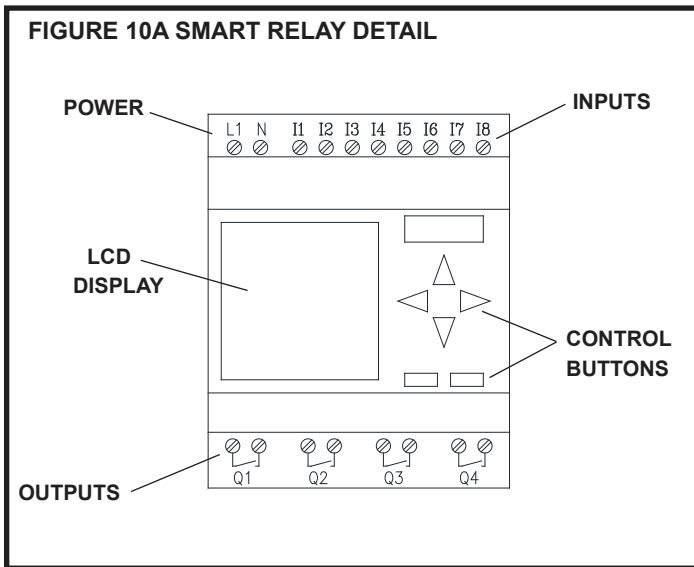
**10.3 CHECKING THE 3-WAY PILOT VALVES (SV1 & SV2) TOWER CHANGEOVER**

All 3-way pilot valves have manual override buttons on the top of the valve. To test SV1 and SV2 do the following:

Make sure the dryer system is pressurized and the Power switch is in the **OFF** position. Both towers should be at full line pressure. Pushing the manual override of SV1 should cause the left tower to depressurize. Allow the left tower to come back up to full line pressure. Pushing the manual override of SV2 should cause the right tower to depressurize. If this does not happen, replace that solenoid valve.

With the Power switch (SW) in the **ON** position and the dryer system pressurized, monitor the dryer system for one complete cycle. SV1 should be activated when the left tower is in the regeneration stage (depressurized) from 15 seconds to 5 minutes. SV2 should be activated when the right tower is in the regeneration stage (depressurized) from 5 minutes and 15 seconds to 10 minutes. These two operations can be monitored in one 10 minute cycle. Reference **FIGURE 6C** for dryer timing chart.

If the above responses are not observed, first check to see if power is being supplied to each solenoid valve when it is supposed to open. Check the wiring between the SmartRelay and solenoid valves. If the SmartRelay is not supplying power to the valve as it should, replace the SmartRelay. If the valve has power but does not operate, it must be replaced.



**10.2A TESTING THE INPUT DEVICES**

The input devices supply a 120VAC signal to the SmartRelay. See **FIGURE 10B** for a list of the input devices.

The input devices can be easily tested for proper operation. With power to the control box, set the Power switch to the ON position.

Press the Alarm Reset Pushbutton and verify that there is 120VAC between terminals N and I3 on the Smart Relay. If there is no voltage, replace the Alarm Reset Pushbutton.

The pressure switches monitor the failure to switch option. The inputs from the pressure switches (PS1, PS2) can be observed while the dryer system is in operation. Any time there is more than 30 psig pressure in the left tower, pressure switch (PS1) should supply a 120VAC signal to Smart Relay terminal I1. Any time there is more than 30 psig pressure in the right tower, pressure switch (PS2) should supply a 120VAC signal to Smart Relay terminal I2. If either of the pressure switches does not respond as previously explained, check the wiring to the pressure switch. If the wiring and device are good, the SmartRelay is faulty and should be replaced. Reference **FIGURE 10D WIRING DIAGRAM** for wiring and terminal numbers.

### 10.4 CHECKING THE INLET TRANSFER VALVE

The inlet transfer valve should not change position until both towers are at equal pressure. At tower changeover, the regenerating tower should approach full line pressure before the inlet valve will switch. Make sure that there are no leaks in the piping or fittings. Make sure that the purge exhaust valves are closing and that the purge metering valve is properly set.

The exhaust ports on top of the pilot valves (SV1 & SV2) should not have air exhausting through them continuously. If air is exhausting continuously through either of the exhaust ports, the inlet transfer valve or exhaust valves are faulty and should be rebuilt or replaced.

To test the inlet transfer valve for proper operation, turn off the power, isolate and depressurize the dryer.

Remove the two pilot lines to the inlet valve. The pilot lines are connected to the outside flanges of the valve. Reference **FIGURE 10C**. Using an air nozzle and clean air, pressurize one of the ports. Observe the position indicator. It should move in the direction of the port that is being pressurized. No air should be exhausting from the other port. Pressurize the other port. The valve should move to the other side. If the valve does not move or air is being exhausted out of the port that is not pressurized, the inlet transfer valve must be rebuilt or replaced. Reference **SECTION 11.3** for repair kit part numbers.

### 10.6 CHECKING THE PURGE EXHAUST VALVES

The purge exhaust valves are normally closed. They can be checked by removing the pilot air lines to them. The valves should be closed.

Using an air nozzle and clean air, pressurize the purge exhaust valves. The valves should open when pressurized. If valve does not open and close, it should be rebuilt or replaced. See **SECTION 11.3** for repair kit part number.

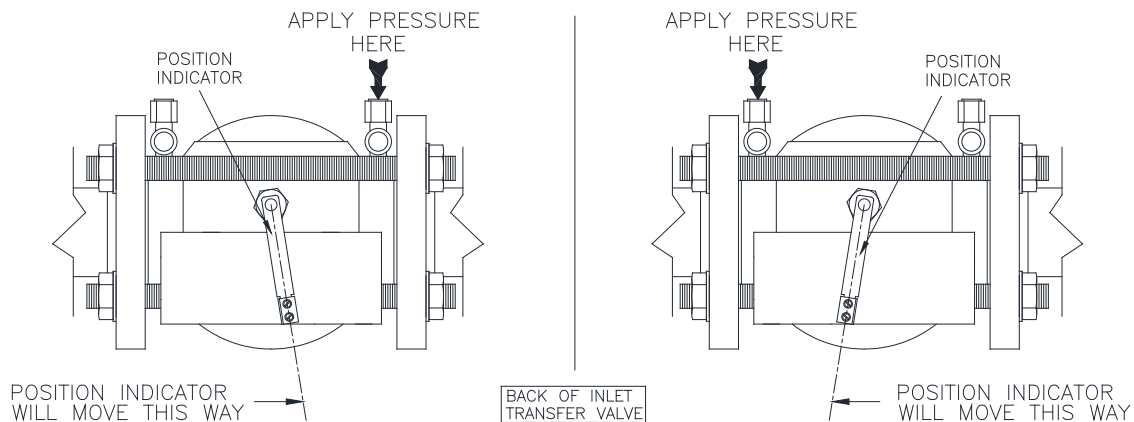
### 10.7 CHECKING THE OUTLET CHECK VALVES

This dryer system uses two check valves for outlet air control. If either of the outlet valves fails, one of the following will occur:

- A large amount of air will purge from one tower
- The outlet air flow will be blocked

If either happens, the faulty check valve must be replaced. See **SECTION 11.3** for part number.

**FIGURE 10C INLET TRANSFER VALVE DETAIL**

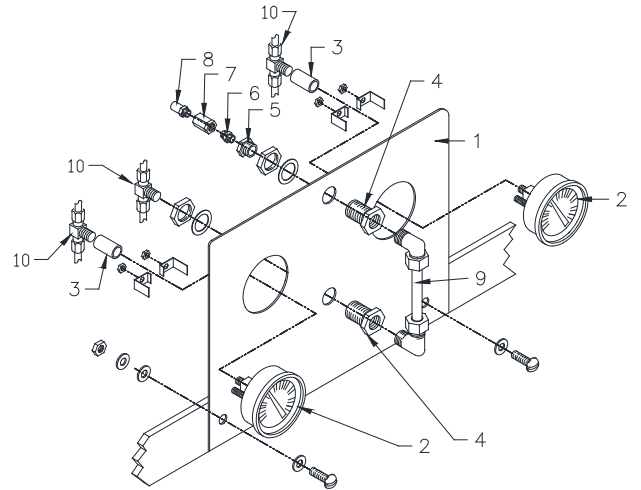






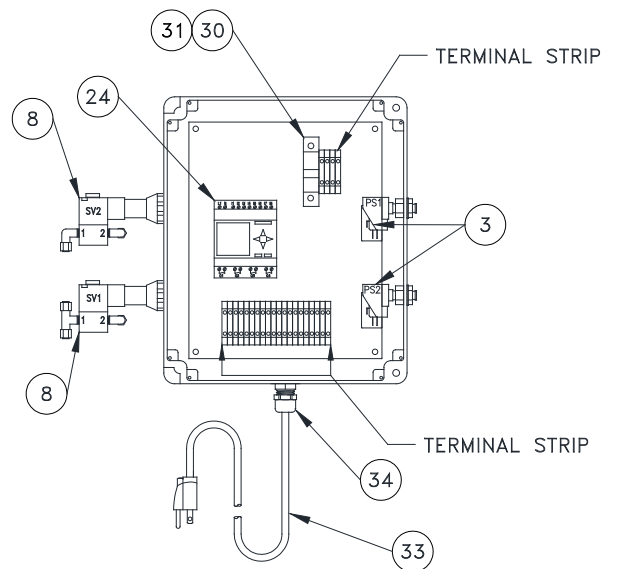
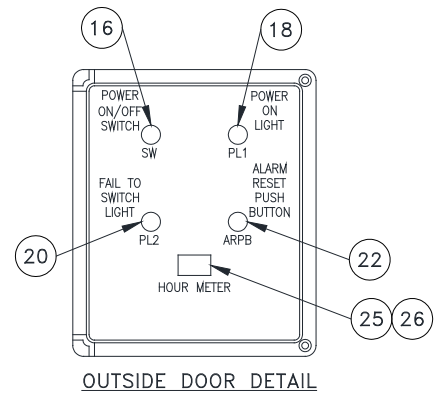
11.1 GAUGE PANEL REPLACEMENT PARTS

| ITEM | QTY | DESCRIPTION                             | PART NO. |
|------|-----|---|----------|
| 1    | 1   | Panel                                   | 27-1235  |
| 2    | 2   | 2-1/2" Pressure Gauge, 0-300 PSIG       | 29-0394  |
| 3    | 2   | 1/4" Coupling                           | 12-0223  |
| 4    | 2   | 1/4" NPT Anchor Tube Fitting            | 26-1497  |
| 5    | 1   | 1/4" NPT x 10-32 Reducer Bushing        | 26-0296  |
| 6    | 1   | 10-32 Short Coupling                    | 26-0657  |
| 7    | 1   | 10-32 Choke Fitting                     | 26-0490  |
| 8    | 1   | 10-32 Sintered Filter                   | 26-0623  |
| 9    | 1   | Visible Moisture Indicator Assembly     | 46-2300  |
| 10   | 3   | 1/4" Tube x 1/4" NPT Branch Tee Fitting | 26-7532  |



11.2 CONTROL BOX REPLACEMENT PARTS

| ITEM | QTY | DESCRIPTION             | PART NO.  |
|------|-----|-------------------------|-----------|
| 3    | 2   | PRESSURE SWITCH         | 26-5284   |
| 8    | 2   | SOLENOID VALVE          | 14-1721   |
| 16   | 1   | SWITCH                  | 26-3949   |
| 18   | 1   | LIGHT, BLUE             | 26-7350   |
| 20   | 1   | LIGH, RED               | 26-7351   |
| 22   | 1   | PUSHBUTTON              | 26-2038   |
| 24   | 1   | SMARTRELAY (PROGRAMMED) | 46-3564   |
| 25   | 1   | HOUR METER              | 26-7352   |
| 26   | 1   | GASKET FOR HOUR METER   | 26-7353   |
| 30   | 1   | FUSE HOLDER             | 26-7312   |
| 31   | 1   | FUSE, 2 AMP             | 26-0679   |
| 33   | 1   | POWER CORD              | 500-00010 |
| 34   | 1   | STRAIN RELIEF FOR CORD  | 510-00001 |
|      | 1   | REPLACEMENT LED, RED    | 26-7368   |
|      | 1   | REPLACEMENT LED, BLUE   | 26-7369   |



## 11.3 DRYER REPLACEMENT PARTS

| ITEM | DESCRIPTION   | FR-800   |     |
|------|---|----------|-----|
|      |   | PART NO. | QTY |
| 1    | <b>Inlet Transfer Valve</b>                             | 14-2331  | 1   |
| 1a   | Seat & Seal Kit for Inlet Transfer Valve                | 26-6272  | 1   |
| 1b   | Position Indicator Kit for Inlet Transfer Valve         | 26-6273  | 1   |
| 1c   | Shuttle Assembly Kit for Inlet Transfer Valve           | 26-6274  | 1   |
| 2    | <b>Outlet Check Valve</b>                               | 14-2627  | 2   |
| 3    | <b>Purge Exhaust Valve</b>                              | 14-2123  | 2   |
| 3a   | Seal Kit for One Purge Valve                            | 26-6929  | 2   |
| 4    | <b>Diffuser basket</b>                                  | 46-0224  | 2   |
| 5    | <b>Fill/Drain Plug</b>                                  | 14-0370  | 4   |
| 6    | <b>Stud</b>   | 28-0409  | 4   |
| 7    | <b>Gasket for R.F. Flange</b>                           | 18-0236  | 1   |
| 8    | <b>Purge Exhaust Muffler</b>                            | 26-3149  | 2   |
| 8a   | Element, for one purge exhaust muffler                  | 26-5776  | 2   |
| 9    | <b>Control Air Filter (includes element)</b>            | 84-20106 | 1   |
| 9a   | Element, control air filter                             | 26-10405 | 1   |
| 10   | <b>Control Pressure Regulator</b>                       | 26-7655  | 1   |
| 11   | <b>Bushing w/Screen (for twr pressure sw conn)</b>      | 14-1820  | 2   |
| 12   | <b>Purge Metering Valve</b>                             | 14-0535  | 1   |
| 13   | <b>Purge Orifice Union **</b>                           | 14-1803  | 1   |
| 14   | <b>Purge Check Valve</b>                                | 14-2642  | 2   |
| 15   | <b>Pressure Gauge</b>                                   | 29-0394  | 1   |
| 16   | <b>Safety Relief Valve</b>                              | 14-2601  | 2   |
| 17   | <b>Gasket for Y-strainer</b>                            | 26-7453  | 1   |
| 18   | <b>Screen for Y-strainer</b>                            | 26-7456  | 1   |
| 19   | <b>Regulator for Pre-Cooler Air Motor</b>               | 26-7435  | 1   |
| 20   | <b>Lubricator for Pre-Cooler Air Motor</b>              | 26-7438  | 1   |
| 21   | <b>Core for Pre-Cooler</b>                              | 34-0972  | 1   |
| 22   | <b>Air Motor for Pre-Cooler</b>                         | 26-6277  | 1   |
| 23   | <b>Fan for Pre-Cooler</b>                               | 26-7478  | 1   |
| 24   | <b>Guard for Pre-cooler Fan</b>                         | 26-7479  | 1   |
| 25   | <b>1/2" NPT Isolation Valve</b>                         | 14-2615  | 3   |
| 26   | <b>Float Drain FD1 (separator/prefilter, prefilter)</b> | 83-0751  | 2   |
| 27   | <b>Manual Drain (afterfilter)</b>                       | 84-10852 | 1   |
| 28   | <b>PD-5 Differential Pressure Indicator</b>             | 84-10001 | 3   |
| 29   | <b>Separator/PreFilter Element</b>                      | 26-10409 | 1   |
| 30   | <b>PreFilter Element</b>                                | 26-10415 | 1   |
| 31   | <b>AfterFilter Element</b>                              | 26-10414 | 1   |
| 32   | <b>Inlet/Outlet Coupling - 2" NPT 4-lug</b>             | 14-2602  | 2   |
| 33   | <b>Rubber Washer for In/Out Coupling (1 per)</b>        | 26-7451  | 2   |
| 34   | <b>Oil for Lubricator (quart)</b>                       | 26-7032  | 1   |
| 35   | <b>Flushing Solvent for Pre-Cooler Air Motor</b>        | 26-7157  | 1   |
| 36   | <b>1" Victaulic Coupling</b>                            | 12-2142  | 5   |
| 37   | <b>1-1/2" Victaulic Coupling</b>                        | 12-2138  | 10  |
| 38   | <b>Desiccant</b>  | -        | -   |
| 38a  | Activated Alumina, 1/8" dia., 25# pail                  | 33-0237  | 1   |
| 38b  | Activated Alumina, 1/8" dia., 50# bag                   | 33-0238  | 1   |
| 38c  | Activated Alumina, 1/8" dia., 375# drum                 | 33-0320  | 1   |

\*\* Orifice union shipped without orifice plate drilled. Center of plate must be drilled with 3/8" diameter hole for a FR-400.

## 11.4 HOW TO ORDER PARTS

To order parts contact your local VAN AIR representative, the representative that sold the dryer, or the factory.

**When contacting your local VAN AIR representative or the factory, the following information is necessary:**

**Dryer model**

**Dryer serial number**

**Dryer part number**

This information can be found on the dryer data tag. The data tag is located inside the door of the control box.

The Service Department can be reached by calling 888-606-9303 or faxing 814-774-3482. Hours are 8:00 AM EST to 5:00 PM EST, M-F.

### SAFETY PRECAUTIONS

Safety is everybody's business and is based on your use of good common sense. All situations or circumstances cannot always be predicted and covered by established rules. Therefore, use your past experience, watch out for safety hazards and be cautious.

| <b>⚠ DANGER</b>   | <b>⚠ DANGER</b>   | <b>⚠ WARN-</b>   | <b>⚠ WARN-</b>  |
|---|---|--|---|
|   |   |   |   |
| <p>DISCHARGE AIR USED FOR BREATHING WILL CAUSE SEVERE INJURY OR DEATH. CONSULT FILTRATION SPECIALIST FOR ADDITIONAL FILTRATION AND TREATMENT EQUIPMENT TO MEET HEALTH AND SAFETY REGULATIONS.</p> | <p>AIR AND OIL UNDER PRESSURE WILL CAUSE SEVERE PERSONAL INJURY OR DEATH. SHUT DOWN COMPRESSOR AND RELIEVE SYSTEM OF ALL PRESSURE BEFORE REMOVING VALVES, CAPS, PLUGS, FITTINGS, BOLTS AND FILTERS.</p> | <p>ELECTRICAL SHOCK FROM IMPROPER GROUNDING CAN CAUSE INJURY OR DEATH.</p> <p>GROUND UNIT AND RELATED EQUIPMENT ACCORDING TO NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS.</p> | <p>READ THE OPERATOR'S MANUAL BEFORE STARTING OR SERVICING THIS UNIT. FAILURE TO ADHERE TO INSTRUCTIONS CAN RESULT IN SEVERE PERSONAL INJURY OR DEATH. REPLACEMENT MANUALS CAN BE PURCHASED BY CONTACTING THE MANUFACTURER.</p> |