

INSTALLATION AND OPERATING INSTRUCTIONS

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3-PAK & 6-PAK CONTROLLER INSTALLATION

GENERAL

These instructions describe the procedure for replacement of the 3-PAK or 6-PAK Controller. The replacement may be due to the upgrading from a multiple board configuration to the newer single board or due to a component failure.

LOCATION

1. 3-PAK – behind front panel and is accessible by removing the upper two (2) screws and lowering the hinged panels.
2. 6-PAK – inside right hand door.

INSTALLATION

3-PAK

1. Disconnect all incoming power to the dryer.
2. Loosen and remove screws holding cover plate.
3. Disconnect all plugs to controller board.
4. Remove and replace controller board.

CAUTION: Before installing new controller, refer to Figure 1 as to proper configuration of the jumper on the back of the board.

5. Install plugs P-1, P-2, P-3.

NOTE: Plug locations are noted on the old and new boards.

6. Install plugs P-4, P-5, P-6.
7. Replace cover plate.

6-PAK

1. Disconnect all incoming power to the dryer.
2. Loosen and remove screws holding cover plate.
3. Disconnect all plugs to controller board.
4. Remove and replace controller board.

CAUTION: Before installing new controller, refer to figure 1 as to proper configuration of the jumper on the back of the board.

5. Install plugs P-1, P-2, P/3

NOTE: Plug locations are noted in the board. Push cabling back so as to make room for the remaining cables.

6. Install plugs P-4, P-5, P-6 and press these wires back.

NOTE: If replacing multiple boards, these plugs should have been attached to the small boards.

7. Replace cover plate.

OPERATING INSTRUCTIONS

1. Solid State Controller – P/N 4700A90 (AC); 4700M117 (DC)

This is a microprocessor controlled circuit board containing the control lamps, switches, alarm lamps, all alarm monitoring circuits, dryer system alternator, three (3) individual humidity alarm circuit and toggle switches for increased timing functions and alarm latch functions.

2. Control Functions

There are six (6) switches on the front of the control board. The column of three (3) switches on the left turn the drying systems ON and OFF.

3. ON/OFF Switches

Depressing the switch to the OFF position first, then to ON, will reset the alternator time clock. These switches must be held in position for two (2) seconds to register a change. This delay eliminates accidental switching after depressing the ON switch for any system. Unnecessary systems will be switched OFF 30 seconds later. If the demand exceeds one system (8000 SCFD) the tank pressure switch will be activated when the tank pressure drops to 18 PSIG. This will then switch on a standby system.

4. Humidity Read and Test Switches

The column of three (3) switches on the right are the Humidity Read and Test Switches. These are momentary, normally OFF switches and must be held in position to activate the meter reading of alarm test circuitry.

To read the moisture level of an individual system, depress the switch for that system to "Read Meter" position and note the reading on the meter, then release the switch.

To test the humidity alarm circuitry of an individual system, depress the switch for that system to "Test Alarm" position. The red alarm light above the switch will light. The yellow compressor run light will begin to flash and the drying system will shut down. A minor C.O. alarm should also occur immediately. This is a test of the electronic circuitry only and not of the humidity sensor element.

NOTE: To test the next system for humidity shutdown, it will be necessary to wait two (2) minutes since a standby system coming online will not honor a humidity alarm for the first 120 seconds. It is possible to speed up the delay time by switching to test mode. (See Section 10).

5. Automatic Operation

The controller begins operating when power is applied. A two (2) second delay will be incurred between the application of power and startup of the first system. Following the two (2) second delay, A system will automatically start, followed by B system one (1) second later and then C system. After all three (3) systems have started, the by-pass flow switch will begin shutting off systems dependent on demand of the cable plant.

CAUTION: Any systems not running are in the standby mode and will automatically start if the demand load changes.

If more air is required due to a failure of an operating system or an increase in demand by the cable network, the system(s) in standby will be started as required. The startup of a system is caused by a tank pressure of less than 20 PSIG.

6. Controller Alarms

The controller provides two (2) separate types of alarms, MINOR and MAJOR.

MINOR ALARMS are generated for any failure, which does not alter output flow and pressure. If a low flow alarm occurs due to a loss in capacity, the faulty system will shut down within 40 seconds. A low flow alarm is indicated by a constantly flashing yellow system light.

NOTE: If a low tank pressure alarm (less than 18 PSIG) is present, the controller will not allow any systems to shut off.

MAJOR ALARMS are generated when the 6-PAK is unable to maintain the output pressure within preset limits. At the bottom of the control panel are two (2) red alarm lamps indicating high and low outlet pressure alarms. These are adjusted and set in the high/low pressure alarm switch.

7. External Alarm Selection

The top of the controller contains five (5) toggle switches, four (4) of which control the types and duration of C.O. alarms.

Open on Alarm, Close on Alarm – There are two (2) switches, one for MINOR alarms and one for MAJOR alarms. The **open on alarm** provides an open contact on alarm and **close on alarm** provides a contact closure on alarm. After determining what type of alarm the C.O. requires, set these two (2) switches accordingly.

8. Automatic Reset and Latch

There are two (2) switches, one for MINOR alarms and one for MAJOR alarms. When in the LATCH position, all dryer alarms will continue until the switch is moved to the “auto reset position” even after the trouble has been cleared. If left in the “auto reset position” momentary alarms will only be reported for the period of time they occur. It is recommended the switches be left in the LATCH position as this will force an inspection of the air dryer if momentary alarms occur.

A humidity alarm, however, is programmed to emit a 120 second minimum alarm. The latching toggle switch does not hold major alarm lights if the alarm should clear.

9. Alternator

The controller features an automatic alternator operating on an eight hour cycle.* The 6-PAK 16 and 6-PAK 24 will automatically shut down unneeded systems and place them on standby.

In a 6-PAK 16, every eight hours, the controller will shut down the on-line system and restart the standby system.

In a 6-PAK 24, with only one (1) system in operation, system A will operate for the first eight (8) hours, system B for the next eight (8) hours and system C for the next eight (8) hours.

*Controllers produced or updated from approximately 1987, operate on a three (3) hour mode.

In a 6-PAK 24, with two (2) systems in operation, systems A & B will operate for the first eight (8) hours, systems B & C for the next eight (8) hours and systems C & A for the next eight (8) hours.

To eliminate one (1) system from the normal cycle, push all systems OFF switches at the same time, release only those systems which are designated to run, while holding down the OFF switch on the excluded system. This switch should be held for 15 seconds. The excluded system may be put back on line by resetting the entire system.

To reset the entire system, push all system ON/OFF switches at the same time holding in the OFF position for 10 seconds and then releasing all switches simultaneously.

10. Test Mode

The first toggle switch on the left of the controller determines the normal speed of switching in the controller. This toggle is marked for three (3) minute or eight (8) hour alteration. This feature allows the operator to speed up the system for purposes of testing or troubleshooting. The test mode toggle switch will activate a light on the front panel when in the three (3) minute mode. If the dryer is shut down and reset, the timer will automatically restart in the eight (8) hour cycle regardless of the toggle switch position. To reactivate the three (3) minute cycle it is necessary to switch to eight (8) hour and back to three (3) minute.

CAUTION: DO NOT LEAVE UNATTENDED IN THREE (3) MINUTE CYCLE.

11. Manual Override System P/N 2271M140

This is a black box mounted on the inside of the right hand door. It consists of four (4) toggle switches, the top three (3) switches are marked automatic and manual. To by-pass the circuit board, move the toggle switch to the manual position and remove all plugs from the controller board. This prevents the alternator from overriding the manual setting. The bottom toggle switch is a three (3) position switch which determines open on alarm, close on alarm or alarms OFF. If in the automatic mode, the alarm toggle switch must be in the OFF position.

CAUTION: WHEN PLUGGING IN OR UNPLUGGING THE CONTROLLER BOARD, THE MAIN POWER FEED MUST BE SHUT OFF. DANGEROUS VOLTAGE MAY BE PRESENT.

TIMING SEQUENCE

- | | |
|-----------------------------------|--|
| Initial Start | - Two second delay after power is applied. |
| | - Each system starts one (1) second apart until all on-line. |
| If All Systems Not Needed- | First system shuts down immediately. |
| | - Thirty (30) second delay until second system shuts off. |
| Low-Flow | - Forty (40) second delay until shut down and minor alarm. |
| Humidity Alarm | - On-line system. Immediate shut down and minor alarm. |
| | - Standby system. 120 second delay before shut down and minor alarm. |
| Low Outlet Pressure | - Immediate Major Alarm. |
| High Outlet Pressure | - Immediate Major Alarm. |

