INSTALLATION AND OPERATING INSTRUCTIONS

TB002-91 Rev –
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6-PAK 60 VDC POWER SUPPLY

GENERAL

This bulletin outlines a change in the electrical "control" circuit of the TX 6-PAK air dryer. All production units shipped after February 25, 1982 and whose serial number is B8257 or higher have a new 60 Volt DC power supply mounted inside the cabinet. It is extremely important that the user know its operation and how to diagnose trouble if a failure occurs in this area.

IDENTIFICATION, LOCATION AND OPERATION OF 60 VDC POWER SUPPLY

The new 60 VDC power supply (P/N 4120A8 Figure 1) is located in the upper left hand side of the right cabinet opposite the air drying modules. The power supply is fed from one phase of the 230 VAC input. Control power (18 VAC) for the solid state control board is provided from the secondary of the step down transformer. The rectifier associated with the power supply provides 60 VDC to directly drive the power relay coil in each air drying module. The power supply is fused with a ¾ AMP fuse (P/N 4514A19). It is recommended that a spare fuse be kept on hand. A spare 60 VDC power supply (P/N 4120A8), should be kept on hand as well with other recommended spare parts.

DIAGNOSIS OF A 60 VDC POWER SUPPLY FAILURE

In the event a major alarm is activated on the 6-PAK air dryer an immediate on-site visit is imperative to secure cable plant protection. If the 6-PAK air dryer is completely disabled, where automatic operation and the manual override fails to start **any** air drying systems, closely follow these **Emergency Troubleshooting Procedures.**

1. Remove alarm plug(s) and check incoming 3 phase AC power line; be certain that approximately 230 VAC is present across **all combinations of the three** power leads. Measure for this voltage at the female receptacle of the line voltage corrector of the air dryer. Do not take voltage measurements to ground. Read across each pair of leads. If a fault is found, reset circuit breaker or replace blown fuse(s) and check air dryer operation. Fuses should be rated at 30 AMPS and of a time delay type.
2. If 230 VAC is present at all three pairs and the air dryer is still inoperative, turn the power off. Locate the four (4) screws which secure the gray safety cover on the 60 VDC power supply. Remove the ¾ AMP fuse (Fig. 2), be certain that it is not blown. If the fuse is OK, return it to its holder. If blown, replace and check air dryer operation.
3. If the ¾ AMP fuse is OK and the air dryer is still inoperative, restore the 230 VAC power.

CAUTION

With power On, there is a 230 VAC present at the input of the power supply. Be sure to use correct lead to prevent accidental contact with another circuit.

Locate the three position terminal strip (Fig. 2) on the DC power supply. Set the voltmeter to measure a small AC voltage approximately 18-22 VAC. Place test lead across positions 1 & 3 of the terminal strip (a green and purple wire). If 18 VAC is present and the air dryer is still inoperative, set voltmeter to measure DC voltage of approximately 60 VDC. Place test lead across positions 2 & 3 of terminal strip (a green and white wire). If voltmeter indicator deflects to the left, change positions of test leads because the rectifier is polarity sensitive. If the 60 VDC is not present, the rectifier has a faulty component and the 60 VDC power supply should be replaced or an emergency wiring modification to the modules may be necessary.

4. If the 60 VDC is present, the 18 VAC is present and the 3 Phase input is present, the air dryer is capable of starting. One final check will be to unplug the outlet humidity sensor cable located in the rear of the right hand cabinet that is plumbed in series with the lower pressure outlet. Upon removal of the outlet humidity sensor cable, place “A”, “B” & “C” system in the manual mode **individually** by moving the toggle switch on the manual mode box to the manual position. If the air dryer fails to operate, proceed with the standard troubleshooting procedures outlined in the manual.

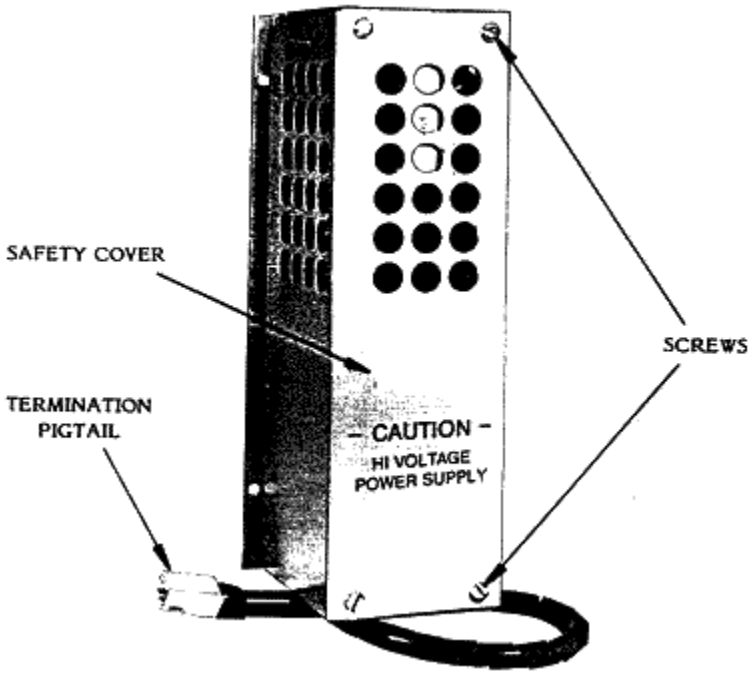
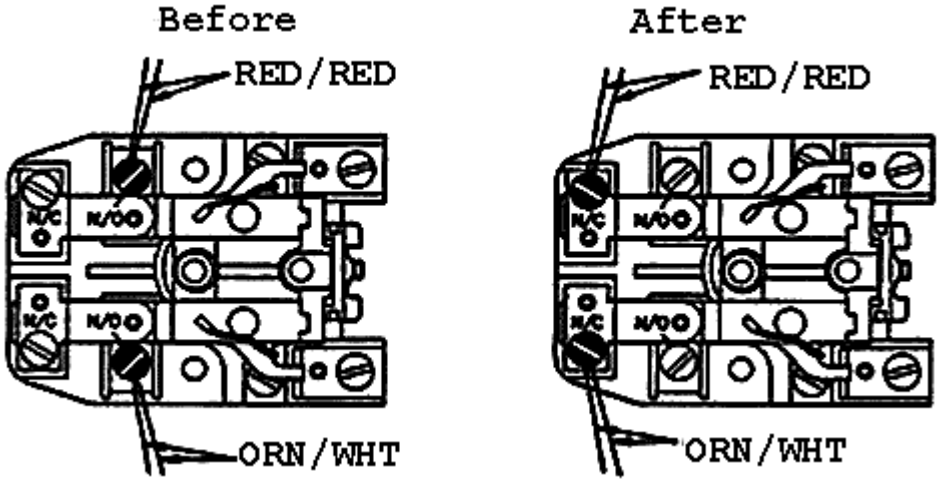


Figure 1. 6-PAK VDC Power Supply

The figures below illustrate the double pole double throw relay, which is mounted behind the electrical cover of the air drying modules. Only the wires necessary to perform the emergency modification are shown.
CAUTION: when the replacement 60 VDC power supply is installed, wires must be returned to their normal positions.

Normal wiring Emergency modification



N.O. - Normally open contact N.C. – Normally closed contact

EMERGENCY WIRING MODIFICATION

1. Turn **main power** off to the air dryer and disconnect the alarm plug(s).
2. Remove safety cover on the back of the main control board located on the right hand door.
3. Unplug the molex connectors from the circuit board.
4. Locate the manual mode box on the lower portion of the right hand door. Place “A”, “B” & “C” system toggle switches in manual position.
5. Place the alarm toggle switch in the close on alarm position or open on alarm position to match the control board settings.
6. The emergency wiring modification will be performed behind the electrical cover and the 6-PAK air drying system modules. The **wiring modification is temporary and is only performed to restore dryer operation.** Also upon receiving the replacement part the wiring modification must be returned to its original position(s).
7. Locate and remove the two (2) screws securing the electrical cover on the “A” system module. The hour meter will be connected, but it will not be necessary to disconnect the wires.
8. Located the double pole double throw relay inside (Refer to Fig. 3) the module. Disconnect the two (2) red wires from the **Normally Open (N.O.)** contact and terminate them on the **Normally Closed (N.C.)** contact. Locate the orange and white wires on the **Normally Open (N.O.)** contact and terminate them on to the **Normally Closed (N.C.)** contact. **Caution:** This temporary wiring change must be returned to original position upon installation of replacement part.
9. Replace electrical cover.
10. Repeat steps 6-9 for “B” system air dryer module.
11. It may not be necessary to modify “C” system because “A” and “B” will supply 16000 SCFD (standard cubic feet per day) to maintain cable plant.
12. Restore power to the air dryer, system “A” and “B” will start and run continuously with only major alarming capabilities. However, if humidity is present, the drying system(s) will not shut down but only an alarm will be initiated.
13. Replace alarm plug(s) and be certain the outlet humidity sensor cable is also plugged in.
14. An active effort to return the air dryer to normal operation is suggested.

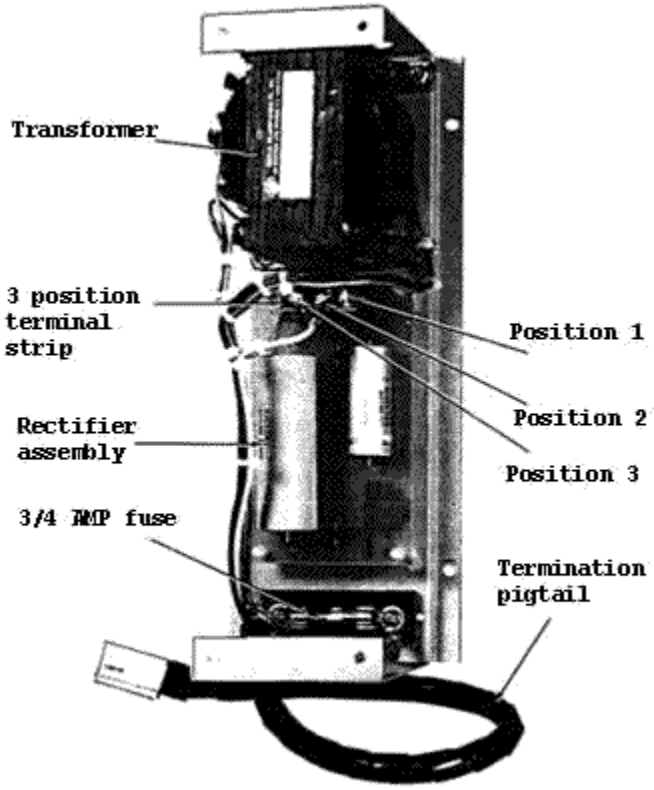


Figure 2