TASK DESCRIPTION INSPECT AND TEST OPERATION OF AIR DRYER
BUILDER'S OR VENDOR'S MAINTENANCE INSTRUCTIONS MPI LOCOMOTIVE MAINTENANCE MANUAL, SECTION 6
SPECIAL TOOLS REQUIRED:
RELATED MAINTENANCE PROCEDURES MODIFICATIONS, POINTERS, ETC.
SAFETY PRECAUTIONS: CONTRACTOR TO ASSUME RESPONSIBILITY FOR SAFETY RULES AND COMPLIANCE.
PREPARATION:

PROCEDURE

	**WARNING** Dangerous voltages are exposed once electrical covers are removed. Maintenance should be carried out only by qualified personnel. This device is safe for operation only with electrical covers in place. The air dryer is under continuous air pressure even when cut off from the air system. Ensure the dual cut-out valve is moved to the cut-out position and the coalescer bleed valve is open before servicing the air dryer. Failure to observe this warning can result in personal injury.

The 975-100 series twin tower air filter dryer system with precoalescer is designed with “memory” feature which permits the unit to regenerate only when the compressor or any compressor in the consist (synchronization) is loading (pumping). The objective is to conserve additional air while maintaining an acceptable performance level.

Note: The “memory” type electronic timer operates only when a signal voltage (+74 VDC) is applied to the “B” socket of the Burndy connector. Any interruption of the signal voltage “B” (compressor or all compressors in consist unloaded) causes the dryer to stop cycling. When the signal voltage (+74 VDC) is reapplied to the “B” socket, the dryer restarts at the point in the cycle it stopped previously. In order for the electronics to work with the “memory” a constant power source (+74 VDC) must be made available to the “A” socket

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and a negative (-) source to the “C” socket within the female connector (Burndy). Any interruption of power to “A” causes the dryer to restart on a new cycle when power is reapplied to “A”, “B”, and “C”. This sequence provides complete regeneration to both desiccant canisters.

Operational inspection of the air dryer requires the air compressor to be pumping and the air pressure equal to a minimum 105 PSI. The following check list may be made to assure the dryer system is functioning normally.

1. Inspect humidity indicators. A blue color represents proper operation, while white indicates unsatisfactory operation and requires further inspection.

2. There should be a slight, continuous exhaust of air at the exhaust port of the purge valve on one dryer. After a predetermined time interval (approximately one minute), there should be a short, loud discharge of air at the exhaust port of the opposite purge valve, followed by a slight, continuous exhaust of air. Approximately one minute later, there should be a similar discharge of air at the opposite dryer. The change in the exhaust of air from one dryer to the other indicates the dryer is operating properly. In conjunction, the automatic drain valve (double seated) on the sump cap of the precoalescer should exhaust each time the air dryer cycles. If there is no change or alternating between the individual dryers or if there is no discharge of air at either purge valve and automatic drain valve (double seated), check the following:

    a. Reaffirm the air system pressure is equal to a minimum 105 PSI and the compressor is pumping. The dryer is equipped with an integral pressure switch, Salem no. 5666-048, which is designed to close at 100 PSI ± 5. If there is no exhaust out one of the two purge valves, “jump” the two connecting wires on the pressure switch. If there is a loud, short exhaust followed by a slight, continuous exhaust, the switch is defective and must be replaced.

    b. If the air dryer does not cycle while the compressor is pumping, check to see if air is present in the piping between the solenoid valve to the inlet check valve and purge valve. If air is present in piping on one side, then changes to opposite side (while compressor is pumping), proper timing is occurring. If air is not present in tubing, check power to dryer (see NOTE). If power is confirmed and there is no air present in tubing, replace the circuit board No. 5666-134.

    c. If actuating air is not in the integral copper tubing to inlet check valve and purge valve during the regenerating cycle, the solenoid valve should be examined to see if the electrical current is to the coil. If current is to the coil, but actuating air is

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not in copper tubing to actuate valves, inspect solenoid valve plunger for proper seating and renew if defective. If plunger binds in coil and does not move freely, renew plunger.

d. Check each inlet and outlet check valve in the regenerating position to be sure of proper seating - if loud discharge of air does not decrease to a slight exhaust of air, check for foreign matter which may have lodged under the seat of either inlet or outlet check valve. Clean or replace seat.

e. Inspect each dryer while in the dehydrating cycle for proper operation - there should be no exhaust of air at purge valve. If exhaust of air is present, purge valve is not seating properly and must be inspected and repaired with new seat, seals and packing cup.

f. Inspect the automatic drain valve (double seated) on the sump of the precoalescer. The drain valve is designed to exhaust each time the dryer cycles. The automatic drain valve is actuated from one of the two adjacent purge valves. If the automatic drain valve does not cycle, inspect the actuating line from the adjacent purge valve and follow steps “b” and “c.”

g. An operational check of the “memory” type timer may be accomplished by unloading the air compressor (locomotive running). The air dryer should stop regenerating. Load the compressor. The dryer should begin regenerating at the point in the cycle it stopped previously. For example, one of the dryers regenerates for 30 seconds prior to the compressor unloading. The compressor loads again and the “memory” feature permits the same dryer to restart at 31 seconds and complete the one minute time period prior to cycling.

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