



ES Service Information

File In/With: N/A

SI0139

New 1-06

Equipment Affected: YPAL Rooftop Units

Nuisance Safety Trips & Lockouts

GENERAL

A potential problem may exist with nuisance System *X* Safety Trip and System *X* Safety Lockout on YPAL Mod C units. On Mod D and E units the control would indicate a Compr *X* LPCO Safety Trip *X* and Compr *X* LPCO Safety Lockout, where *X* can be 1, 2, or 3.

Several changes were made during Mod C production. The first increased the opening set point spec for the refrigerant low-pressure switch. The part number was changed to 025-36388-003, and the switch opens at 32 psig and closes at 52 psig. The second change added a solenoid valve in the main liquid line. This allowed a pump down option to be added to the unit. The Mod D and E units have these enhancements from the beginning of production.

On Mod C units when the pump down option is used, the smart relay will continue to send an output to the compressor contactor until the low-pressure switch opens or 30 seconds has expired, whichever occurs first. Because of the tightness of the check valve in the Copeland compressor, the time required for the pressure in the low side of the system to rise above the pressure switch close point of 52 psig could take over an hour. If the pressure switch does not close and the control reinitiates compressor operation the compressor will operate for 30 seconds and then shut down on a System *X* Safety Trip. If this sequence occurs two additional times the primary unit control will initiate a System *X* Safety Lockout.

On Mod D and E units, when the pump down option is selected through the User Interface, the control will continue to send an output to the compressor contactor until the low-pressure switch opens or 30 seconds has expired whichever occurs first. Because of the tightness of the check valve in the Copeland compressor the time required for the pressure in the low side of the system to rise above the pressure switch close point of 52 psig could take over an hour. If the pressure switch does not close and the control reinitiates compressor operation the compressor will operate for 45 seconds and then shut down on a Compr *X* LPCO Safety Trip #. If this sequence occurs two additional times in 120 minutes, or the low pressure switch does not close in one hour, the primary unit control will initiate a Compr *X* LPCO Safety Lockout.

Engineering has revisited the need for pump down on the YPAL product and has determined the benefits are minimal for the following reasons. Because of the tightness of the check valve in the Copeland compressor and the closing of the liquid line solenoid valve, even when pump down is not used, the majority of the liquid refrigerant is trapped in the condenser during the off cycle. The only liquid refrigerant that can migrate to the compressor is the remaining liquid refrigerant in the evaporator coil. Because of the compressor crankcase heaters the amount of migration from the evaporator coil to the compressor sump will be negligible. During start up there will be a small amount of liquid refrigerant in the suction line but Engineering has determined that the amount of liquid refrigerant entering the compressor will have effect on the performance or life of the compressor.

SOLUTION

Based on the that analysis we recommend the following action be taken on units that experience the above symptoms.

On Mod C units:

Disconnect wire 144 from the I4 terminal of the smart relay for the system 1 compressors,
Disconnect wire 145 from the I4 terminal of the smart relay for the system 2 compressors, and
Disconnect wire 146 from the I4 terminal of the smart relay for the system 3 compressors.

The wires will remain hot so it is important that a splice cap or tape be used to insulate the terminal.

On Mod D and E units

The control can be reprogrammed to eliminate the pump down option. To do this press the Option key and enter the level 2 password. Scroll right to the Comp Sys 1 subsection. Scroll down until you come to Pump Down Enable and change it from ON to OFF. Changing Pump Down Enable to OFF for system 1 will disable the option on all the compressor systems.

The nuisance trips will not occur on all units. Therefore, the above rework procedure is only to be performed on units that exhibit the above issues.

SUBMITTING THE WARRANTY

Claims for repairs must be made using the standard procedures. Time allowanace is one hour, plus travel. The “Problem Description” section of the warranty claim must contain a reference to Service Information Letter SI0139.