Ducted Systems
Technical Services
Service Tips Letter

Letter: **ST-014-2019 (Revised)**

Date: December 13, 2019

To: Ducted Systems (Factory Direct) S1 HVAC Branch Service, Sales, Warranty Managers
Ducted Systems (UPG/Applied) Distribution Service, Sales, Warranty Managers

Subject: **Revised - Nuisance Hi-Limit Tripping (HS1 Lockout)**

Product: **Commercial: York (Small Sunline), Luxaire (Small Optimum), Coleman (Small Apex), JCI (Series 5), 3-5 Ton Packaged (FJ, Champion, TempMaster) w/SSE Controller**
Serial Number Range: N1A7 thru N1K9

Effective: **December 13, 2019** Expires**:** **October 21, 2022**

Summary: Johnson Controls DX Ducted Systems has received a limited number of calls regarding nuisance hi-limit tripping causing a hard lockout on the SSE controller. In an effort to understand this reported concern completely, JCI representatives have visited multiple job sites to obtain operating conditions to be used to resolve the concern. Several units were recovered from problematic sites and returned to our factory gas lab for an in-depth examination along with additional testing to replicate and confirm the field reports.

The data collection and lab testing results revealed two independent issues. The 3 Ton Direct Drive (100 KBTU Gas Heat Unit ONLY) hi-limit rated @ 170 degrees was subject to premature tripping based upon site and application conditions. Our engineering team engaged the CSA listing agency for approved use of an alternate rated limit switch having a higher value than the original device. Replacement of the primary limit switch with the device found in the kit referenced in Table 2 below, provides resolution for this specific unit only. The other models were found to have blower assembly variances which contributed to the limit trip events and will require a different work through with no limit switch change.

The investigation indicated a very limited incidence of failure as compared to the total population of units produced in the range of this ST-Letter. Below you will find a detailed checklist to assist customers in determining indications of unit experiencing Limit trip lock-outs. Upon work-through and completion of the steps noted in the checklist by a qualified Service Technician, where no other factors can be attributed to the reported concern, we have provided a list of applicable repair part numbers below to resolve the issue. (See Table 1 or Table 2 for required component). It is also suggested the SAT Air Temp Limit for Heating Setpoint (SATHtgLimit-Sp) within the SSE controller be set to 140^0 upon completion of the repair.

Please contact our Technical Services Team at 877-874-7378, our Technical Services Team will review the data and indicate any special warranty considerations on a case-by-case, fix-on-fail basis only.

NOTE: Please read the checklist in its entirety before performing any of the steps below. Refer to the unit installation manual for safety instructions and warnings associated with performing work on the unit. Work to be performed by a qualified HVAC technician.

Nuisance Trip Check List

1. Verify blower gasketing is flush with flanges: (Top will need to be removed) Trim excessive insulation and gasket raised up from the bottom edge of blower that may block off air stream and divert airflow patterns if needed.

2. Ensure blower opening flanges are flush against evaporator partition panel and no large air gaps are present.

3. Check blower housing aligned with the control box

4. Check blower wheel for center and level: (Top will need to be removed) Adjust if needed

5. Confirm adequate airflow for unit and adjust as needed: Use dry coil pressure drop chart in I&O manual

6. Check operating total external static pressure is below .9″ W.C. (Direct Drive) 1.5″ W.C. (Belt Drive)

7. Check burner assembly for proper alignment: Gas flame should be drawn into center of the shoot plate holes

8. Check pilot flame: Ensure flame not spilling and set too high

9. Check manifold gas pressure and confirm not over-fired: Adjust manifold pressure close to 3.1 W.C. if over fire condition exist

10. Check temperature rise is within operating ranges on nameplate.

Notice: Disconnect and confirm voltage was removed from the unit prior to proceeding with Steps 1 thru 4.

Notes:

1. For steps 5, 6 &10 it is recommended that any outdoor air accessories be set to 0 % prior to obtaining measurements.

2. When checking the temperature rise, measurements should be taken a minimum of 3 ft. below the unit in the ductwork.

Blower Kit Table

Table 1:

Unit model	Drive	Cooling size	Heat size	Voltage	Kit no.	Description
ZE036, ZD-03, J03ZE, ZDT03	Direct drive	3 ton	50K	230-1-60 230-3-60	2BA0401	Blower kit: 3 ton, direct drive
ZE036, ZD-03, J03ZE, ZDT03	Standard belt drive	3 ton	50K and 100K	230-1-60 230/460-3-60 575-3-60	2BA0402	Blower kit: 3 ton, belt drive
ZE048, ZD-04, J04ZE, ZDT04	High static belt drive	4 ton	75K and 125k	230/460-3-60 575-3-60	2BA0403	Blower kit: 4 ton, belt drive
ZE060, ZD-05, J05ZE, ZDT05	High static belt drive	5 ton	100K and 125k	230/460-3-60 575-3-60	2BA0404	Blower kit: 5 ton, belt drive
ZE048, ZD-04, J04ZE, ZDT04	Direct drive	4 ton	75K and 125k	230-1-60 230-3-60	2BA0405	Blower kit: 4 ton, direct drive
ZE060, ZD-05, J05ZE, ZDT05	Direct drive	5 ton	100K and 125k	230-1-60 230-3-60	2BA0406	Blower kit: 5 ton, direct drive
ZE048, ZD-04, J04ZE, ZDT04	Standard belt drive	4 ton	75K and 125k	230-1-60 230/460-3-60 575-3-60	2BA0407	Blower kit: 4-5 ton, belt drive
ZE060, ZD-05, J05ZE, ZDT05	Standard belt drive	5 ton	100K and 125k	230-1-60	2BA0407	Blower kit: 5 ton, belt drive
ZE036, ZD-03, J03ZE, ZDT03	High static belt drive	3 ton	100K	230/460-3-60 575-3-60	2BA0408	Blower kit: 3 ton, belt drive

Limit Kit Table

Table 2:

Limit Kit application Unit Model	Drive	Cooling Size	Heat Size	Voltage	Kit#	New Description
ZE036, ZD03, J03ZE, ZDT03	Direct Drive	3 Ton	100K	230-1-60 230-3-60	2PL04700100	Limit Kit, 3 Ton, 230V, Direct Drive

Note: <u>Only</u> 3 Ton 100 KBTU Direct Drive Models have been approved for limit switch change

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