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## Modine Technical Service Bulletin

Subject: Safety issue when separated combustion gas-fired heaters are used in conjunction with a failed vent system

Date: January 2019

To: Modine Sales Representatives and Distributors

Affected Models: Separated combustion unit models including but not limited to: PSH/BSH, HDS/HDC, PTS/BTS, PTC/BTC, DFS, DBS, DCS, IFS, IBS, ICS.

Modine has become aware of a potentially serious safety issue when separated combustion gas-fired heaters are used in conjunction with a failed vent system. Specifically, when the vent system is allowing products of combustion to be recirculated back into the fresh air pipe, there is potential for a severe delayed ignition which could lead to damage to the unit, damage to the unit casing, and even the bottom access panel being separated from the unit and falling to the floor. Modine has not been made aware of any injuries caused by this condition. Note that vent pipe and most other venting components are supplied by others.

Figure 1: Damaged unit heater Potentially caused by failed Vent System



Figure 2: Failed Concentric Vent System



Modine has extensively reviewed documentation from numerous sites. Among the items common to these sites is a concentric vent where the product of combustion (exhaust) was allowed to recirculate back into the combustion air pipe (fresh air).

All Modine separated combustion heating units and their vent systems must be inspected. Modine recommends shutting all heating units down until the vent systems are inspected and verified to be working correctly.

Separated combustion unit models include but are not limited to: PSH/BSH, HDS/HDC, PTS/BTS, PTC/BTC, DFS, DBS, DCS, IFS, IBS, ICS. Model PSH/BSH units were built between 1995 and 2007. All other models are currently in production.

Modine performed tests on a model PSH unit to force recirculation of products of combustion back through the combustion air inlet of the unit in an attempt to simulate a breached concentric vent. Although we were unable to fully replicated the incident, we determined that recirculation of products of combustion could be a contributing factor.

Other items that may contribute to the potential safety issue:

1. A “universal” ignition control was installed to replace the original Modine ignition control on heating units at multiple sites. All original Modine parts must be replaced with Modine approved service parts. Modine requires that replacement parts must be listed in the original certification of the unit.
2. Preventive maintenance was neglected on units at multiple sites (please see “Keeping the Heat On” publication 75-600 which is available on [www.ModineHVAC.com](http://www.ModineHVAC.com)). Several units showed considerable water leakage, most likely due to condensation in the vent system.

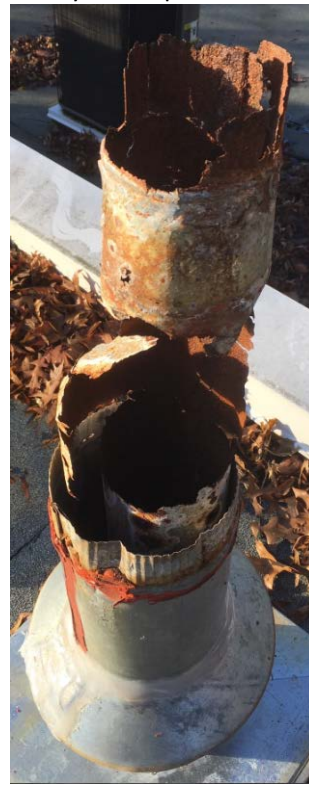
Actions required:

**Inspections must be performed on all vent systems to make sure they are in proper working order.** Figure 3 shows that visual inspection of concentric vents is not adequate to determine if the vent is working properly. Figure 4 shows the vent system from Figure 3 upon further inspection. Vent caps must be removed to inspect the inner pipe and ensure it has no breaches. Two-pipe systems should also be reviewed to ensure recirculation of products of combustion is not possible. Preventive maintenance is required on all gas fired appliances. At least annual inspection of vents on all gas appliances is best practice.

Figure 3: Visual Inspection of Vent Pipe is **NOT Sufficient**.



Figure 4: Vent System Upon Further Inspection



**Vent designs must be reviewed:** (a) for ways to reduce the chance of recirculation of products of combustion (concentric or otherwise) and (b) to make sure equivalent vent lengths are within Modine requirements. Recommended venting arrangements may be found in the Installation and Service Manuals available on [www.ModineHVAC.com](http://www.ModineHVAC.com).

**Replacement of all non-Modine components with those certified for use with a Modine gas appliance.**

**A full preventive maintenance must be performed on all separated combustion units.** There are many issues that can cause delayed ignition, including but not limited to: incorrect gas pressure, dirty or misaligned burner, dirt in an orifice or burner carry over strip, etc. Red tag and remove from service any and all units that have reached the end of their serviceable life.

Performing these items will help reduce the chances of a serious delayed ignition event.

Please contact Modine Technical Service ([technicalservice@na.modine.com](mailto:technicalservice@na.modine.com) 800-828-4328) if you have questions about this issue.